

Valentin Larionov
Andrei Kokoshin

**PREVENTION
OF WAR
DOCTRINES
CONCEPTS
PROSPECTS**

Progress Publishers

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Designed by *Andrei Razumov*

В. В. Ларинов, А. А. Кокошин

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Introduction

In his novel *War and Peace*, Lev Tolstoy asked: why do millions of people kill one another though killing has been denounced as a physical and moral abomination since the creation of the world? Is there not a different morality teaching us to prevent killing and thus to induce people to think of peace? Is this not an exceedingly simple idea?

Tolstoy's ideas have particular meaning in our stormy nuclear age when peace means the survival of humanity. Putting these ideas into life is of the utmost necessity.

The brightest minds have been considering ways to attain this global ideal—to eliminate war—both before and after Tolstoy.

The dawn of modern times already witnessed the beginnings of the anti-war movement (the Czech King George of Podebrad, Hugo Grotius, Thomas More, Erasmus, Jan Amos Komensky and others). During the Enlightenment, Jean Jacques Rousseau, Immanuel Kant, Johann Gottfried von Herder, Johann Gottlieb Fichte and others did much to further the ideas of the prevention of war and to ensure peace in Europe. We should certainly note works by our compatriot, Professor S. E. Desnitsky of Moscow University, and the Russian enlighteners V. F. Malinovsky and Ya. P. Kozelsky in the 18th-early 19th centuries.¹ As weapons became increasingly powerful and destructive, humanitarian scholars, public and political figures stressed more and more insistently the “laws of war and peace”.

Because of the spread of rifled weapons, back in the 17th century Hugo Grotius condemned the “wanton debauchery” of war and advocated a “law of peace”. His system of “treaty international law” was designed to regulate

¹ A. S. Chubaryan, *European Idea in History. Problems of War and Peace*, Mezhdunarodniye Otnosheniya Publishers, Moscow, 1987, pp. 125-41 (in Russian).

relations between the belligerents, including steps to make them refrain from war.

Some military theoreticians also concerned themselves with a search for ways to preserve peace and prevent destructive wars. For example, Dietrich Adam Heinrich von Bülow (1757-1807) who paid a good deal of attention to the problem, wrote: "I treasure military art as an aegis of security and freedom, and my duty is to work in this field since I am convinced that I have ideas of how to make offence fruitless by improving on the art of defence."¹

For numerous reasons, these political and military ideas have not been put into life. However, they are part and parcel of the overall intellectual legacy helping us to solve present-day problems in a constructive manner.

With the advent of ever new powerful weapons of destruction, such views have gained increasing currency among public figures and scholars. Attempts have been made to sign international agreements to restrict or ban altogether the use of weapons that cause unacceptably heavy destruction, and to prevent the loss of civilians. For example, a declaration was signed on Russia's initiative in St. Petersburg in 1868 that banned the use of explosive bullets. It has been in effect to this day. A number of declarations and conventions on the laws and customs of war on land were signed in The Hague in 1899, also on Russia's initiative. They include the Declaration Forbidding the Launching of Projectiles and Explosives from Balloons and the Declaration Concerning Expanding Bullets. Conventions were adopted in The Hague and Geneva, in 1907 and 1925 respectively, that established the norms of the conduct of warfare. They ban: treacherous killing, or injuring, of civilians; killing and injuring of an enemy who lays down arms; killing and injuring of parliamentarians; bombardment of unprotected towns and villages, and destruction of cultural values and monuments; relocation of civilian population from the occupied territories; use of poisonous gases.

¹ Quoted from: *War and Military Art in the Light of Historical Materialism*. Collection of Articles, Gosizdat Publishers, Moscow-Lenin-grad, 1928, pp. 58-59 (in Russian).

Vladimir Lenin, the great materialist thinker, did not ignore the progress of military technology. Back in the early 20th century, he pointed out the increasing destructiveness of weapons and predicted that the potential danger for the peoples of the planet would indeed be formidable.

Modern technology, Lenin wrote, may be used "on such a scale, so destructively and with such energy, for the annihilation of millions of human lives" that it may "undermine the very foundations of human society".¹ In fact, Lenin was even more far-sighted in noting that "the time would come when war would become so destructive as to be altogether impossible".²

This time came in the mid-20th century with the advent of nuclear weapons and their rapid qualitative and quantitative build-up. Their massive introduction into the arsenals of armed forces in combination with ballistic missiles revolutionised the military establishment and caused radical changes in the character, forms and methods of armed struggle and war in general. The result has been that the planet would become a single worldwide geostrategically theatre of war if a totalitarian war broke out. No place on the Earth is invulnerable to destruction as the combined destructive potential is great enough to ruin civilisation. Humanity became the master and prisoner of a monster of its own making.

"The development and subsequent stockpiling of nuclear weapons and of their means of delivery beyond all reasonable bounds have made man technically capable of terminating his own existence," said Mikhail Gorbachev addressing the International Forum for a Nuclear-Free World, for the Survival of Mankind.³

It is therefore absurd under such conditions to speak of attaining any positive political goals through the use of modern military technology. Hence the conclusion: while in the past weapons constituted a functional instrument of

¹ V. I. Lenin, *Collected Works*, Vol. 27, Progress Publishers, Moscow, 1977, p. 422.

² N. K. Krupskaya, *About Lenin*, Moscow, 1960, pp. 40-41 (in Russian).

³ *New Times*, Moscow, 1987, No. 8, March 2, p. 2.

warfare in the true sense of the word, nuclear weapons actually have been losing this status. They have become an instrument of blackmail, threats and pressure and a method of warfare that can only be used in extreme cases. However, their use would be equivalent to suicide for mankind. As a symbol and vehicle of force, nuclear weapons have at the same time exposed the limits of force; in other words, nuclear war cannot be the continuation of a sensible policy.

As far as conventional weapons are concerned, they remain a usable instrument of local wars—and since 1945, not a year has passed without a war in some part of the world.

Conventional arms, formerly battlefield weapons, are acquiring the range of intercontinental missiles. Moreover, some conventional arms have come close to the destructive power of nuclear weapons and even supercede them in accuracy.

The temporal technological parameters of the modern sophisticated weapons have also been undergoing a drastic change. Weapons now strike with such speed that an operator has literally split-seconds at his disposal to respond. This multiplies the probability of error.

Naturally, the development of weapons and military technology goes hand in glove with social processes. Under their impact the world today has changed beyond recognition since the dawn of the nuclear age. The global challenges confronting the human race (the threat of a nuclear war, ecological and other problems) have compelled peoples to share a common destiny and have made them interdependent. They are, in effect, hostages to one another. The prevention of war therefore is a task of global dimensions. This task cannot any longer be regarded as reluctant, essentially opportunistic, actions by a particular country or the use of propaganda by a political leader, as some Western ideologists say.

Common sense and the logic of the development of military technology make clear that war can no longer be a means of settling international disputes and contradictions. The need to settle them through political means, dialogue,

talks and a search for acceptable compromises, constitutes one of the cornerstones of new political thinking.

The prevention of war is, therefore, one of the imperatives of our times, for both the USSR and the USA, all the ideological differences notwithstanding. Even at their first summit in Geneva in 1985, the leaders of the two countries declared in their joint statement that "a nuclear war cannot be won and must never be fought. Recognising that any conflict between the USSR and the USA could have catastrophic consequences, they emphasised the importance of preventing any war between them, whether nuclear or conventional."¹

This policy was clearly confirmed during the visit of the USSR President to the USA in May-June 1990.

No problem of the world politics today is as complicated as that of the prevention of war since this is linked to the need to scrap or discard a whole system of age-old traditions and material, scientific and technological values accumulated by the human race and individual nations in the course of many decades.

The Cold War period with its stress on confrontation resulted in East-West relations becoming locked in a rigid matrix of mistrust and suspicion. In some cases, the blame for this could be placed upon both sides since they translated their ideological contradictions into military-strategic ones.

Real disarmament is vital, if the threat of war is to be overcome. However, modern weapons systems are so complex that even agreement on a procedure of descending from this "Olympus" of weapons and equipment to lower levels, sublevels and, subsequently, down to zero level, constitutes a task of exceeding complexity. This, as experience demonstrates, calls for boldness, fortitude, time and an extensive analytic effort.

There is a need to cut back production at or even scrap a number of efficient industrial enterprises, a source of lucrative profits for certain groups or even sections of the

¹ Geneva. *The Soviet-US Summit. November 1985. Documents and Materials*, Novosti Press Agency Publishing House, Moscow, 1985, p. 9.

population, and ones that are traditionally quite prestigious. If successful, the effort to curtail this type of production cannot but cut into the profits of the arms manufacturers and the scientific and technological élite and cause concern among direct producers. Business of "defence" and its spokesmen in defence ministries are behind all military programmes in capitalist countries. All of these vested interests form the military-industrial complex that has long constituted an obstacle to disarmament.

One cannot also forget that some countries which did not join the nuclear club are not yet conscious of the biological and climatic consequences of the nuclear catastrophe.

Many may recall that a country, a newcomer to the nuclear club, once described the A-bomb as a "paper tiger" while other countries there already had a realistic idea of the weapon's destructive potential.

Another example: in 1962, a group of Soviet authors wrote a book, *Military Strategy*,¹ which did not question the possibility of large-scale land, air and naval operations employing weapons of mass annihilation. Regarding this work as a largely outdated but quite a natural product of its day, one of its authors has co-authored this monograph.

Official views concerning the prevention of war largely rely on political decisions. But while the elaboration and implementation of these decisions call for the participation of experts in military technology and science and the bodies of strategic and operational planning, many of these experts tend to cling to outdated views and resist discarding their old-line approaches. After the 27th Congress of the Communist Party of the Soviet Union and the adoption of a defensive military doctrine, steps have been taken to provide for the elimination of this sluggishness in military mentality. Similar trends can be observed in the West—for example: the increasing number of those who support the idea of a non-offensive defence in respect to general-purpose forces and conventional armaments in

¹ *Military Strategy*. Ed. by Marshal of the Soviet Union V. D. Sokolovsky. 1st edition—1962; 2nd edition—1963; 3rd edition—1968 (in Russian).

Europe; a growing opposition to the development of new weapons systems; and an increasingly vigorous criticism of the destabilising Rogers Plan and the aggressive US naval strategy (associated with Admiral James D. Watkins and former Secretary of the Navy John F. Lehman, Jr.).

Problems involved in the effort to prevent a new world war and to limit and reduce armaments have to be solved against the background of acute global and regional problems, including: a looming ecological catastrophe, a growing gap between the developed and the developing countries, the developing countries' growing debts, abysmal misery and hunger in the Third World. One often hears officials from developing countries say that the prevention of major wars and disarmament are basically the concern of the superpowers.

Though at odds with the interests of common security in our interdependent world, this viewpoint must as a whole certainly be reckoned with.

Significantly, the sphere of new political thinking increasingly includes traditional military issues, for example, the development of military technology, military construction, strategy, and some aspects of tactics. These problems are discussed at summits and by diplomats and are hotly debated in social and political circles.

The influence of political thinking on military thought and vice versa is revealed in other fields as well. Specifically, the problems and prospects of the arms limitation and of disarmament cannot be analysed without identifying and considering all laws in the evolution of the art of war, in particular those of long-range character. At the same time, what, in effect, constitutes the most essential subject in international relations, the problems of disarmament are becoming increasingly prominent in discussions concerning the future of the armed forces of the states and coalitions and of military thought.

Such a mutual influence calls for a thorough and intense scientific inquiry on the basis of a systems approach, efforts by scientists and experts in a variety of fields and establishment of a new scientific discipline that can be described as military-political studies. It is from these positions that the

authors address the problems of disarmament and world stability.

Social, economic and political factors play a dominant role in the evolution of the means and methods of warfare. However, the evolution of military science itself, including weapons and equipment, is also not insignificant. For the new thinking to be effective, the dynamics of the modification of varied weapons systems and the formation of the military technosphere, created by man but evolving in accordance with its own and yet little-studied laws, has to be taken into account in its entirety. The knowledge of these laws is essential for military construction, diplomatic and foreign policies.

Weapons systems and new methods of warfare (new in some parameters, at least) sometimes develop at a far greater rate than that at which talks on the limitation of the armed forces and armaments proceed. This is so mainly because our partners at these talks lack the political will to negotiate and the right-wing militaristic forces offer considerable resistance. Another problem is that the logic of the development of weapons systems, and the evolution of strategy and tactics, is not properly considered, and that no due efforts are taken to find the correlation between this logic and that of politics and diplomacy.

One of the key issues here is the need to analyse the dialectics behind the development of the means and methods of both conventional and nuclear offence and defence. There is the need for an accurate diagnosis of the current potentials of offence and defence and for long-range and medium-range prognoses. Such comprehensive assessments and prognoses should be based on the understanding of deeply rooted historical laws of development.

One of the objectives of the authors is to emphasise once more that the problem of the prevention of war is no longer just pure theory and that it should be put into practice. This should include, as an indispensable measure, the transformation of military thinking and changes in the nature of the military activities of both sides. These steps can be discussed on a bilateral or multilateral basis, and their sum total may take the form of a doctrine of war

prevention to be followed by individual nations and entire coalitions.

The prevention of war is an extremely multifaceted problem. Naturally, the authors never intended to address its every aspect or examine every kind of war (global, regional, civil). They concentrate primarily on issues pertaining to the relaxation of tensions and the prevention of nuclear or conventional war between the East and the West, the greatest potential danger for the human race.

This book gives prominence, among other things, to the problem of how and to which extent the question of the prevention of war must be reflected in military doctrines. In this connection, several focal points concerning the essence of the concept of a military doctrine seem relevant.

According to Soviet literature, a military doctrine is defined as a system of views on the goals and character of a possible war, the preparation of a country and its armed forces for war and the methods of warfare if war becomes a *fait accompli*, a system of views that is officially established in a country or an alliance of countries.

The usual practice is to draw a line between two aspects of a military doctrine: the political and military-technical aspects. Until recently, the former aspect was regarded as the more stable one, while the latter, which determines the means, forms and methods of warfare, as the more dynamic and changeable one. New political thinking is reflected in each aspect to an equal degree.

A military doctrine is directly reflected in regulations, instructions, recruiting policy and army organisation, combat and tactical troops training manuals, morale-building directives, the system of armed forces equipment and the officer-training system. Doctrines and corresponding military programmes as adopted, serve as a basis for the elaboration of short-term and long-term industry programmes.

Significantly, once officially adopted and announced, a doctrine usually assumes the form of universally binding regulations. In fact, it amounts to being the state's fundamental law in the field of defence.

To make its recommendations concerning weapons and

equipment, the doctrine usually relies on military science and the art of war (strategy and tactics).

A system of knowledge about the laws of development of warfare based on the studies of the age-old experience of warfare, the nature and state of the means of warfare and the prospects of their development, military science is freer in its quests. The nature of the conclusions military science arrives at is such that, not being binding, they are normally widely discussed. In this sense, military science is more flexible, is open to debate, and investigates the entire spectrum of military experience, including lost battles.

Under present-day conditions, military doctrines, strategic, tactical and operational concepts, the structure of the armed forces, and the means and methods of their use as applied to new political thinking must be transformed to promote international security on a reciprocal basis and reduce the burden of military expenditures. To understand long-term trends in the development of the military field, including military technology forming an exceedingly sophisticated military technosphere, is a prerequisite to achieving the above goal.

One of the pivotal problems today is the stability of the achieved military and strategic equilibrium (strategic stability), and the realistic assessment of possible trends towards destabilisation of a military-political situation which can lead to war. But war may also start because of error, not through either side's deliberate actions. The logic of events may draw the sides into a conflict that can have the most tragic implications. This problem is becoming increasingly urgent. Today it is vitally essential to predict such situations, identify their factors and work out measures to preclude them on a mutually acceptable basis.

The constructive initiatives launched by the Soviet Union and its allies in recent years aimed at relaxing tensions in the world, reducing the threat of war and promoting understanding between countries of different social systems, have produced promising results.

Further progress along these lines is largely connected with the promotion of military detente, reduction of armed forces and armaments, in particular nuclear ones, confi-

dence-building, reduction in the level of military confrontation and the creation of conditions under which no opposing side could make a surprise attack and mount a large-force offensive. It is also essential for military doctrines and military strategic concepts to rely heavily on the ideas of the prevention of war and the primacy of defence in a country's military effort. The authors seek to present their views on these issues, primarily as regards military doctrines. Their considerations cannot be regarded as a practical guidebook, much less as the statement of official views. The book's primary purpose is to focus attention upon these questions, demonstrate their complexity, importance and diversity and identify some approaches to the solution of the problems. To help encourage further investigation into the prevention of war is the aim of this book.

1. Politics and Military Doctrines

There is a direct functional connection between politics and a military doctrine as a system of views on war. Indeed, a state's military doctrine is the sum total of its military policies, a kind of algorithm of practical activities in the development of the armed forces and their combat training.

According to historical data, some countries were forced to address these tasks. Other countries made it a point to rely on attaining political objectives through military force. Still others were dragged into military conflicts by force of circumstances.

Everything depends on the political course a country follows, which is determined by the interests of a country's ruling classes. The class origin of a state's political course, and of the state itself, manifested itself even when private property and property differentiation of people (division of society into classes) only began to emerge.

However, towards the mid-20th century, it became clear that the stability of society's class structure did not make for an immutable mechanism of connection between politics and war, and between politics and the military doctrine determining a country's attitude to war.

Today, the antagonism of class-incompatible state doctrines must give way to a different kind of relations. War does not pay as an instrument of politics in a single, interdependent world, which has forced ideological enemies to start comparing military doctrines and reducing them to a common denominator in the interests of the prevention of war. Notably, it has turned out that the comparison of the military doctrines of the capitalist and the socialist countries is essential not only from the angle of their contents but also from that of the genesis of the transformations they have been undergoing in recent decades.

On Bourgeois Military Doctrines

Since the emergence of war as a social phenomenon and a regulator of interstate relations, the human race had to contend with the thorny question of war and peace, their correlation and legitimacy. Two diametrically opposed approaches to these fundamental issues have crystallised in modern times, i. e., since the bourgeoisie and proletariat came into being. These approaches have motivated individual population groups, and after the triumph of the proletarian revolution in Russia in October 1917, the two basic state systems, capitalist and socialist.

As is known, capitalism did not recognise the legitimacy of the victory of the socialist revolution or socialism as an ideology, still less as an existing social system. At the first stage of their relations, this stance led to a policy of war, militarism, a confrontation with the socialist world and a refusal to seek a reliable international security system.

On its second day of existence, the world's first socialist state adopted a Decree on Peace. This act of the Soviet government described war "as the gravest crime against humanity" and proposed that the capitalist countries immediately begin negotiations in order to conclude peace "without annexations and contributions". The Decree on Peace laid down the basic democratic principles of Soviet foreign policy aimed at preventing war, promoting peace, and ensuring peoples' right to freedom, independence and social progress.

To be sure, throughout nearly a century, the two divergent approaches to war and peace were not always so well-defined and thoroughly consistent, i. e., that capitalism means war and socialism, peace. For example, with the advent of imperialism, militarism has had quite a checkered career: it has been continually growing stronger. However, the international arena in which it operated has witnessed considerable changes.

For example, the creation of the military organisation of the world's first proletarian state and the USSR's emergence in the international arena, eroded one of the basic pillars of militarism, capitalism's monopoly of military

force. This compelled monopoly capital to search for new forms of coercion, military blackmail or even to agree at times to talks on peace and cooperation with the Soviet state. There have also been cases in which bourgeois democracies, on the one hand, recognised the need for disarmament and an international security system, and on the other, did everything to encourage the preparation of war against the Soviet Union.

All their ethnic hues and leanings notwithstanding, monopoly capitalist military doctrines of the pre-nuclear age shared a common element: a view of war as the most radical instrument of politics.

As capitalist countries became stronger economically, the leading trend in the organisation of their armies was a rapid rise in the strength of regular armed forces on the basis of conscription. In turn, this brought into existence the strategy of mass armies intended for large-scale operations. There is a clear trend among the military to expand their influence on all spheres of life, and towards an increase in the destructive character of war.

After capitalist monopoly of military power received a body blow, the policies of imperialist countries always sought to attain military superiority, to expand their military muscle, notwithstanding all zigzags in policy. However, the field in which military power can be used to good effect as a means to prevent developments detrimental to imperialism's interests, has been shrinking. This trend became particularly prominent after the Second World War.

Monopoly capital had a peculiar attitude to the advent of nuclear weapons as a technological means revolutionising all concepts of the potential and limits of the use of military force.

At first, the ideologists and political leaders of the main capitalist states saw in nuclear weapons a guarantee against social revolutions and other upheavals in the Free World. Socialists, however, viewed nuclear weapons, first and foremost, as evidence that an era was coming when war would become so destructive as to be impossible.

At the same time, the Western political leaders sub-

scribed for long to the use and threat of use of military force as a political instrument. The military doctrines reflected this attitude.

Regarding weapons and equipment as the key element of military organisation, monopoly capitalism has always sought to use them as a compensation for its numerical disadvantage in respect to the exploited majority, to prevent the appearance of an explosive mass army whenever possible. Another objective was to expand the frontiers of the "attainability" of goals in the international arena through military force and superiority in armaments and equipment over the opponent.

As experience demonstrates, neither objective was fully attained. Despite the politics-stimulated progress in military equipment that went on throughout the 20th century, capitalist countries were compelled to maintain mass armies. The advent of ever new kinds of weapons revolutionised the nature of war and expanded its scope. Changes in armaments and army organisation caused what Engels defined as a "radical revolution in the military field" that made "impossible any other war except a world war of an unparalleled cruelty and scope" at the turn of the 20th century.¹

This constituted an objective contradiction in the development of weapons and equipment under capitalism. Seeking to modernise instruments of war and find new efficient devices for expansion that would not be so dependent on popular will, in reality bellicose imperialist circles drew nations into bloody and increasingly destructive wars.

The very idea of reliance on force, a capitalist country's invariable guideline in the international arena, constitutes another contradiction. Military might has always been regarded as the most radical means in the capitalist class's arsenal. It became a standard of bourgeois political thinking, indeed, a rule of conduct for the leading capitalist countries in the period of imperialism.

Since the use of military force has traditionally been

¹ Karl Marx/Friedrich Engels, *Werke*, Bd. 22, Dietz Verlag, Berlin, 1974, S. 517.

regarded as a legitimate form of the pursuit of national interests and goals in the international arena, capitalist states have always sought to build up their military strength to levels sufficient for these objectives. The progress of weapons and equipment and the improvement of the instruments of war were more often than not regarded as the solution to the problem.

The early 20th century, the period of large-scale war preparations by capitalist powers and of the two world wars, witnessed numerous advances in weapons and equipment, but it did not produce an adequate solution to the problem.

The aggressive circles in capitalist states regarded the revolution in the instruments of warfare that became obvious as a result of the advent of nuclear and thermonuclear weapons, as the last step to the fulfilment of their dream of an "absolute power", for attaining any goals.

But the progress of weapons and equipment does not take place in a vacuum. In fact, the other side was also building up its military strength for its own security. As a result, there have been increasingly fewer chances to use military force with impunity (or with "acceptable costs", i. e., "acceptable damage"). This raised the problem of its "usability" arising from the contradiction between the power of a weapon and the "price of the victory".

Rather than solve the problem of the use of military force, the progress of weapons further complicated the problem. Doubts concerning the possible use of the military technological potential as a direct political instrument led, in time, to the recognition of a "nuclear parity" and the "impracticability" of certain forms of the use of military force. This led to the modification of military doctrines.

Henry A. Kissinger wrote in 1968: "As recently as twenty-five years ago, it would have been inconceivable that a country could possess *too much* strength for effective political use... The paradox of contemporary military strength is that a gargantuan increase in power has eroded its relationship to policy."¹

¹ *Agenda for the Nation*. Ed. by Kermit Gordon, The Brookings Institution, Washington, 1968, p. 589.

The US military doctrine is the most graphic illustration of the doctrinal changes resulting from the build-up of military strength.

Having created, by the late 1960s, an arsenal of weapons of different classes that was far in excess of defence sufficiency level, the US ruling circles confronted the problem some of the sober-minded US political leaders, scientists and technology experts had pointed out earlier, i.e., that hopes to attain national security on the basis of the arms race, weapons modernisation and the maintenance of a "strategic superiority", were illusory.

Following an agonising analysis and reappraisal, US leaders concluded that there was a need to review a number of criteria which had previously been relied upon for the assessment of US nuclear strength and the strategic Soviet-US balance of nuclear forces. The first to come under review was the very approach to the concept of strategic superiority that was replaced by another formula, "defence sufficiency". This was viewed as being more in accord with the new situation.

It was recognised that, a strategic parity with the Soviet Union being a fait accompli, great strides in raising an assured enemy destruction potential were already impossible while small steps did not get the USA anywhere as they could not prevent the other side's being capable of inflicting unacceptable damage on the USA. In response to these developments, from the early 1970s the USA began to modify its concept of armed forces construction, in an attempt to adjust itself to new strategic realities.

These developments formed basic aspects of the armaments policy and changes in the US military doctrine for the 1970s and 1980s.

First, emphasis was placed on the qualitative development of the armed forces in the hope of attaining "technological breakthrough" and technological superiority over the USSR.

Second, stress was placed on building less vulnerable nuclear strike forces in order to raise the effectiveness of "deterrence", specifically that on the trend to reassign the main grouping of strategic forces to the navy and to build

mobile missiles and subsurface superhardened missile silos.

Third, stress was placed on the reduction of general-purpose forces, the improvement of their regular personnel (based on voluntary service), and the upgrading of the US army arsenals, while allies were urged to build up their conventional forces with US technological aid.

In 1967, NATO adopted the flexible response doctrine. This laid down a step-by-step transition from conventional war to the use of theatre-of-war nuclear forces and to the use of strategic nuclear forces as is required by the course of a conflict.

In addition, the USA officially announced the concept of limited and selective options or limited nuclear war in 1974. This further codifies the potential nuclear wars as global, selective and limited. However, the claim that a selective nuclear war would not be fraught with high risks and may indeed be compared to a conventional war, adds considerably to the probability of the use of nuclear weapons. With the lowering of the nuclear threshold, i.e., the moment when the belligerents go over from conventional to nuclear weapons, the probability rose for a conventional war to escalate rapidly into a nuclear one.

A major element of the US military doctrine of the 1980s has been the Strategic Defense Initiative programme (SDI). With US military and political course becoming increasingly aggressive in the early 1980s, even the idea itself of a nuclear shield against the other side's retaliation forces, destabilizes international relations; even more so does the possible development of SDI-related military technologies which can lead the offensive arms race along new lines.

The idea of using technological progress to achieve military superiority includes the concept known as "the competitive strategies" that was launched quite recently and is being widely discussed.

In a nutshell, its objective is to make US strategy competitive in a changing world and to counter the Warsaw Treaty member countries' efforts to prevent war with a search for ways to preserve military strength as an effective US and NATO political instrument. To gain

military superiority in a new situation, the following steps are considered necessary: first, a search should be launched for new effective methods and forms of the use of conventional arms; second, efforts in the technological competition with the USSR should be concentrated on priority fields, the use of present-day and future progress in information science, communications and control facilities, the robotisation of weapons, etc., in order for the US to be always in the forefront in major fields of scientific and technological progress.

In other words, emphasis is made on intensifying the debilitating arms race and weapons modernisation, not on folding them, including research and development that can destabilise the international situation.

However, notwithstanding all these shifts, the fundamentals of US military doctrine have remained unchanged since the Second World War. Its essence, the reliance on military force as one of the essential political instruments, and on military superiority has survived and, in fact, has never been called into question. US doctrine remains offensive; it has always been geared to the preservation and use of nuclear arms. Significantly, every modification of US military doctrine insists on the first nuclear strike strategy. But as the balance of forces, the US strategic positions in the world and the level of the development of weapons and equipment change, so do the doctrine's provisions concerning military construction and the means and forms of the use of military strength. For example, when the USA possessed great nuclear superiority, central to the provisions of the doctrine was the hard-line massive retaliation strategy that provided for the USA to decide at will on a massive nuclear strike. Having lost its nuclear superiority, the USA went over to a flexible response strategy which lays down the use of military force in doses.

The analysis of interdependence between military equipment and doctrinal provisions expressed in strategic concepts reveals the direct link between an imperialist country's potential, means and limits in the use of military force.

However, it is a fact that circumstances may force it to change the methods and forms of the use of military

strength. The USA often makes minor concessions in order to prevent a retreat on a broad front and to avoid compromising the idea itself of the use of military force as a political instrument. To this end, it seeks to increase the effectiveness of the use of military force within the lower stages of the escalation of a global nuclear war by developing new models and parameters for its use.

It would be logical to illuminate two points in the conclusion of this résumé of the evolution of capitalist countries' military doctrines: the creation and the use of military force.

We can state the following considerations concerning the former aspect.

As is obvious from the experience of the evolution of militarism during the last 90 years, the period of the domination of monopoly capital provided militarism with fresh powerful sources for the creation and development of military force. Today, the developed capitalist countries possess large reserve industrial capacities and well-developed and highly-organised production and state regulation mechanisms that make it possible to maintain military production at a high level and to make wide use of the scientific and technological revolution to create and improve the military machine.

As the USA demonstrates, an annual diversion of expenditures to the tune of 6 to 8 per cent of the GNP for military purposes (an acceptable figure, say some experts) makes it possible to build up the existing nuclear potential and other components of the country's military and technical might and to maintain an army of more than 2 million.

It should also be kept in mind that the USA and many other developed capitalist countries have powerful vested interests supporting a militarist policy, the preservation and build-up of war industry, the arms race, military research and development and whipping up an atmosphere of military hysteria.

Thus, we can point to the following factors as conducive to the creation and preservation of military strength in leading capitalist countries (or coalitions) at a high level: large industrial capacities (including reserve ones); fairly

good opportunities for the relatively painless diversion of expenditures to military purposes; opening-up opportunities for the scientific and technological revolution to develop new and more efficient weapons and equipment; and a political and military doctrine stimulating a military build-up.

Another trend is linked to the negative consequences the continuing military build-up and arms race would have upon the economy, threatening the disruption of "internal peace" and social unrest (a graphic illustration of this was the USA during the Vietnam war). As is clear from the US experience, these negative consequences make themselves felt even if the diversion of expenditures to military purposes does not reach their maximum.

The following, we believe, are the factors that objectively limit the development and build-up of military strength in imperialist countries and, consequently, the doctrinal aspects relating to this: the objective limits of the diversion of expenditures for military purposes; limited internal resources of raw materials and work force with a need to retain the best proportions in their distribution for the military and civilian sectors; negative consequences of the development of military equipment and the arms race that come into conflict with the idea of a stronger "national" security; and growing anti-militarist protests at home and throughout the world.

While the internal conditions, economic strength and defence effort of an imperialist country are central to its military build-up, the possibilities and limits of the use of military force (usable means of warfare) are more dependent on the prevailing situation in the international field and on the extent to which a country's military strength is neutralised by its chief opponent's defence potential, and finally, on the overall international balance of political, economic and military forces.

The imperialist system cannot disregard the fact that its expansionist and dictatorial tendencies are now opposed by peace-loving forces led by the Soviet Union, the military strength of which is as great as that of the supporters of confrontation by force. The USSR has attained an in-

disputable strategic parity with the United States and possesses a military potential ensuring the country's security and the protection of peace. This precludes a safe direct armed attack on the Soviet Union.

Operating in today's closely-knit world are powerful factors opposing militarism: the impact of peace efforts, the influence of the Non-Aligned Movement, and massive anti-war movements.

Nor can it be disregarded that sober circles of monopoly capitalism seek to pursue a policy of survival. Adjusting itself to the existing realities, monopoly capitalism prefers relatively peaceful, largely political and ideological methods of struggle against socialism, standing for the triumph of global ideals, disarmament and a stable world. According to Academician Georgi Arbatov, "The class nature of militarism is indisputable..., but this is not all there is to it. The elementary equation: militarism is equal to capitalism—does not get us any nearer to the main thing, the understanding of ways for an effective struggle against militarism, as this position leads to the conclusion that militarism and the threat of war can only be removed after the worldwide triumph of socialism. Such a viewpoint is essentially wrong as it makes for passivity in the struggle against militarism and overlooks contradictions in the ranks of the ruling bourgeoisie themselves."¹

But even with a shrinking sphere of the "utilisation" of military means, ruling circles and ideologists of the imperialist powers view some present-day trends and factors as favouring meaningful use of military force. An important factor is their conviction that if regained, the strategic superiority over the USSR which they lost would in the long run again place them in a position of "absolute power" making it certain that a conflict would have a favourable outcome for them even if the entire arsenal of strategic weapons is used. Moreover, they rely on achieving a technological breakthrough in natural science. High hopes are pinned on the effectiveness of various forms of the "limited" use of military force capable of settling a

¹ *Kommunist*, 1987, No. 2, p. 113.

military confrontation with the socialist world and the national liberation movement through calibrated "trials of strength".

Thus, the content and nature of the present-day military doctrines of the imperialist powers reflect the historical period in which imperialism possesses considerable material resources for a military build-up. Spurred on by capitalist political considerations, and the selfish interests of the military business and the inner logic of the arms race, the military build-up continues. However, the build-up of military strength is accompanied by the progressive depletion of the potential of its effective use. The limits of its "utilisation" have already been reached in its principal components. In any case, the bellicose imperialist circles can no longer rely on a favourable outcome in a conflict if a global nuclear-missile war is unleashed.

From the History of Soviet Military Doctrine

Initially, Soviet military doctrine developed as a teaching concerning the defence of the world's first proletarian country. This could not but leave its imprint on its content. The elaboration of Soviet military doctrine was linked to revolutionary transformations in the country. From the outset, the young Soviet republic had to wage an unequal and decisive struggle against the united forces of imperialism and internal counter-revolution. Thus, during its earlier years, the USSR was compelled to build up its army as an instrument of protection and as a punitive sword of the revolution. The proletarian state's first military doctrine also laid down this principle.

The organised proletariat had not any previous experience in large-scale armed conflicts against the combined forces of the world reaction. Lenin thus emphasised, "literally, we had to grope our way". In pioneering this difficult road, we could not avoid mistakes that later cost us dearly.

Changes in Soviet military doctrine were determined by the alteration of conflicts with foreign enemies the USSR

had to fight and peaceful periods on the one hand, and by changes in the country's economy and the modernisation of the army and navy technostuctures it was forced to make.

During the Civil War in the USSR, Soviet military doctrine was based on Lenin's concept that the defence of the socialist country was natural and legitimate. But once the onslaught of the revolution's enemies was repulsed, not all new state and military leaders were able to adjust to the new situation and limit themselves to the defence of the country. The first Soviet military doctrine was influenced by the concept of offensive warfare, thus adding fuel to the fires of the world revolution.

At that time, Soviet military leaders and theoreticians tended to regard all wars the Soviet Union would be compelled to wage as revolutionary. Thus, in the event of wars against capitalist countries or coalitions of these countries (no other wars were predicted), the strategy of the Workers' and Peasants' Red Army was to be strictly offensive.

Other factors fuelled these sentiments. At that time, included among Red Army's top commanders was an influential group of commanding officers who overestimated the offensive operations of the Civil War period. The fact that the Red Army's operations were not only victorious and offensive during the Civil War was overlooked.

Another factor was the ideologisation of the military doctrine of that time. A professional analysis of the experience and the prospects of the development of the defence was replaced by propaganda and sloganeering. Many claimed that the nature of the world's first socialist country, governed by the leading revolutionary class, was such that it could only conduct an offensive strategy. The prevalent opinion was that the capitalist countries would be as weak on the home front as the White Guard had been during the Civil War, and that Europe's proletariat would side with Soviet Russia in case of war.

These sentiments constituted an important factor in consideration of a single military doctrine of the Red Army initiated by the Soviet military press immediately after the end of the Civil War. It reached its climax at the 11th

Congress of the Bolshevik Party in 1922. The subject was discussed at a conference of the congress military delegates and then at a plenary meeting.

At the congress, Mikhail Frunze stated that the "revolution-wrought change in the nature of the Red Army's troops, which has given guidance of it to proletarian elements, has found its expression in the character of the use of general tactical and strategic devices".¹ Thus, the time had come when the lack of resources could and must be compensated for by vigour, boldness, manoeuvre, high moral and offensive spirit, and the use of guerilla and other types of warfare which could ensure success provided there was the unity of purpose, will and action.

At that time, Frunze was decidedly opposed to proclaiming the Soviet doctrine to be "defensive in spirit". He believed it could only be offensive.²

The party upheld the correct, essentially Leninist, views of the advocates of a single military doctrine. However, it rejected the adventurist offensive approach. This was a very important chapter in the history of Soviet military thought when the doctrinal thesis of an offensive war was discussed. However, it was never accorded official recognition.

This decision corresponded to the country's economic potential. The young Soviet republic confronted economic dislocation after the Civil War. Under these conditions, the government found a more economic mixed type of military organisation which combined regular elements with those of territorial militia type.

A complete transition to military construction on the basis of a mixed system was effected in the course of a military reform in the mid-1920s that laid down the principal ways for the Red Army to improve its combat efficiency at the least possible military expenditures.

¹ *Basic Present-Day Military Task. Verbatim Report of the Second Day of the Conference of Military Delegates at the 11th Congress of the Russian Communist Party (Bolsheviks) on April 1, 1922*, Supreme Military Editorial Council, Moscow, 1922, pp. 123, 124 (in Russian).

² Significantly, Frunze later dropped the approach. He played a role in the implementation of military reforms in 1924 and 1925 based on possible peaceful coexistence with capitalism.

The country was in the process of laying down new foundations for the socialist economy. This called for the maximum mobilisation of material and labour resources. The situation was not unlike that facing perestroika today. Relying on a small regular staff, the mixed system was an effective instrument that provided military training but did not take reservists far from their workplaces or areas of residence. This system of military construction for a long time met the needs of the Soviet Union's defence in a stabilised international situation. However, as the threat of an armed aggression against the Soviet Union grew towards the latter half of the 1930s, the system was phased out. It was replaced by a unified full-time service system of military construction, beginning in November 1937. The process was over by early September 1939; in effect, it meant a second military reform.

Back to the early 1920s. To all intents and purposes, the period saw the total domination of Lenin's views expounded earlier in his work "*Left-Wing* Communism – an Infantile Disorder.

It should be noted that at the time, there were many who were opposed to overestimating the revolution's economic gains and to attempts to press forward, despite the real situation, politically and in the formulation of purely military plans. Among these was A. A. Svechin, a professor of the Academy of the Workers' and Peasants' Red Army and author of works on strategy who, though not a Communist, held Lenin's works in high esteem and admired Lenin's determined pursuit of fundamental goals and his flexibility and capacity for political manoeuvre to meet the changing needs of a situation.¹

Though he did not rule out altogether the possibility of future wars being of a revolutionary and offensive nature, Svechin argued in his works that basing policies and military strategy exclusively on ideological superiority was dangerous. He noted that "the experience of history was not very heartening" in this respect. This could lead to

¹ A. A. Svechin, *Strategy*, 2nd edition, Moscow, 1927, p. 70 (in Russian).

wrong political guidelines, the overestimation of the possibilities of strategic offensive operations and, finally, to catastrophe.

Basing himself on analysis of historical laws of development and considering the potential of the sides' industry and economy, Svechin stressed that the coming war would be difficult and long-drawn-out for the Soviet Union and that it would require stage-by-stage mobilisation of vast resources and would tax the nation's powers to the utmost. He warned against reliance on early successes and the so-called rapid strategy of destruction which could allegedly decide a war in a series of short and brilliant offensive operations. The Soviet theoretician countered this doctrine with his own strategy which he referred to as the strategy of attrition, emphasising the need to prepare for protracted conflict demanding the mobilisation of the country's entire resources and a many-sided strategy.

The party and military leadership did not support discretion in military planning, much less preparedness for strategic defence. In the 1930s, Svechin and a number of other theoreticians belonging to the analytic school of Soviet military science, lost their lives in sweeping purges. As a result, during the years leading to the Second World War, official views on military construction were largely dominated by an offensive approach. Though Soviet military doctrine proclaimed its commitment to defence as its guiding light, military and strategic planning assumed that the Red Army would fight in foreign countries for the most part. Thus, prior to the Great Patriotic War (1941-1945), Soviet military theoreticians failed to elaborate in adequate detail the forms and methods of strategic defence. This could not but negatively affect field training and the preparation of the theatres of operations.

The 1940 Field Service Regulations described the USSR as a "bulwark of peace" but added that if an enemy forced us to go to war, the Workers' and Peasants' Red Army would be the most offensive-minded.¹ Reliance, for the

¹ Field Service Regulations of the Workers' and Peasants' Red Army (FSR-40), Moscow, 1940, p. 8 (in Russian).

most part, on the offence affected the country's and the army's defensive potential. Supply bases and depots and technological resources were moved close to the border; rear defensive lines were not organised; and the required troop groupings were not formed. Throughout the entire early period of the war these failures constituted a serious handicap.

It is impossible today to establish to what an extent Soviet policies in respect to military construction and strategic planning that were rejected or failed to be implemented in the years before the Second World War, would have been superior to those actually utilised. In any case, it is obvious that a lack of alternative military and political decisions and pre-planned scenarios of a defensive policy and strategy at the outbreak of a war, and the rigid adopted tactical plan which ignored the reality, did much damage.

Nazi Germany's treacherous attack that came when the USSR was not fully prepared for war initially shattered the doctrines of pre-war vintage. The beginning of the war was totally unlike anything the Soviet Union had envisioned. The Soviet army had to conduct strategic defence, a type of warfare for which it was unprepared. There was no time or conditions for the mobilisation and the strategic deployment of forces in accordance with the military book. The results are common knowledge, as is the fact that the USSR won the war by means of enormous efforts and losses.

Victory in the Great Patriotic War played a cruel jest on post-war Soviet theory. Brilliant and effective offensive operations by the Red Army in 1943-1945 led Soviet military theoreticians give priority to offence, not only tactically but also strategically. The trend was reinforced by the advent of nuclear weapons, a powerful weapon to augment an offensive. This explains why Soviet military doctrine gave priority to offence almost till the mid-1980s.

This emphasis on offence is readily explainable psychologically. It is also a fact that an entrenched stereotype cannot be uprooted overnight by any military school. It should also be noted that after the mid-1950s, peaceful

coexistence added to Soviet military vocabulary such concepts as the strategy of equal security, the rejection of superiority and first strike. Under present-day conditions, it is an essentially defensive military doctrine. To be sure, the fundamentals of the doctrine are central to this change. Whereas prior to the Great Patriotic War the doctrine was based on the assumption that war was inevitable, today we believe that it can be prevented. This is not to say that war is impossible. However, the difference between the doctrine of the 1930s and that of the 1980s is substantial. This difference is quite important for the present-day military doctrine.

New Political Thinking and Military Doctrines

A mixed blessing, the scientific and technological revolution has left us an ugly legacy: a colossal growth of the means of warfare. The dangerous implications of this development began to be grasped shortly after the end of the Second World War. Moreover, the threat of war continued to aggravate the situation notwithstanding the fact that there was a number of successful steps to curb the arms race, international agreements achieved on limiting war preparations in various countries.

In the post-war period the USSR has been making consistent efforts to halt the arms race, to reduce and eliminate the threat of war. In the mid-1980s it made another dramatic stride in its peace offensive when it proclaimed a strictly defensive military doctrine and undertook to implement it.

The drastically new approach to military doctrines was based on the concept of new political thinking advanced at the 27th Congress of the Communist Party of the Soviet Union. It is based on the realities of the present-day diverse, multi-faceted, dynamic, yet contradictory, world. In this common world all countries share a common destiny and face common dangers, of which the threat of nuclear war is the most formidable. If humanity is to

survive and live on the Earth to continue, countries and nations on all continents have to rise above the national, class and other distinctions. The supremacy of global interests over national and class ones, respect for the right of each nation to pursue its own way of social development, and a non-violent world as an ideal—these are the great values of the new thinking.

The correspondence of the new political thinking to mankind's aspirations, its humanism and emphasis on practical actions are reflected in the principles of international security. In brief, these are the following:

- we live in a closely knit world in which the threat of war is of global proportions;
- security cannot be attained at the expense of the others, it can only be mutual;
- the path to greater security and stability in the world lies in disarmament coupled with the strengthening of confidence and cooperation, not through a military build-up.

It is quite obvious that new political thinking and the renunciation of war as a means to settle political and ideological disputes and conflicts, include not only the restructuring of military doctrine as such, but also of practical plans and activities in the field of military construction, education and training of troops and everyday functioning of the armed forces.

In this connection, the central element of the new military doctrine is the emphasis on the prevention of war.

But why is this emphasis a radically new development?

First, no previous military doctrine has ever made the prevention of war its explicit objective.

Earlier, the vast majority of military leaders saw the prevention of war as a mission of political leaders and diplomats. In effect, armed forces posed as a "fire-brigade" when diplomatic efforts proved inconsistent and ineffective. In other words, in the past a military doctrine determined a country's and its armed forces' modus operandi after D-day, i.e., when war became a fait accompli. Now we see that the armed forces concentrate their efforts on the prevention of the catastrophe.

Numerous changes have been taking place in military diplomacy, defence industry and the military establishment. There is a growing understanding that the Soviet economy currently needs a powerful boost. Failing this, the erosion of the fundamentals of socialism, including its defence potential, would be quite a probable prospect.

Second, new practical solutions will be required as international tensions relax (the trend has been evident during the last three years) and the restructuring of the Soviet military establishment gains momentum. They seem in order in various fields: the renunciation of the stereotypes of the old military thinking, and the reorganisation of the armed forces as a whole and of individual military units. These military bodies rebuild their structures by striking offensive weapons systems off their roster; moreover, they acquire a drastically new organisation. For example, motor rifle, tank, motorised infantry and armoured divisions, mobile and offensive units, may be reorganised along purely defensive lines. There are also plans to modify the recruiting and military service system (military reform), military technology construction and combat training programmes and all kinds of supply.

Obviously, rigid, old-line approaches to an arithmetic balance in the military field based on reaction to the opponent's decisions and actions lead directly to a lopsided weapons and equipment policy and long-range plans of the development of countries and their armies. Time passes judgements here on important decisions of the past and offers an insight into the future.

Third, a new emphasis on the prevention of war in a military doctrine presupposes:

- the improvement and proper functioning of early-warning systems; the maintenance of armed forces in readiness to repel aggression;
- an active participation and expert help in international talks on disarmament and the prevention of military incidents at sea, on land and in the air;
- participation in the technological monitoring of the observance of disarmament agreements at national and international levels;

– the destruction of weapons systems specified in international agreements;

– active participation of armed forces in the prevention and elimination of the consequences of natural disasters, catastrophes and technological accidents, both at a national and an international level.

It is obvious that all kinds of activities of the armed forces are implemented before war. Many of these constitute measures to prevent or help prevent war.

Today, an important task for the military system in the prevention of war is the maintenance of a military and strategic parity at the level of defence sufficiency, with progressively lower limits in the future.

It is natural that the defensive doctrine is translated into strategy, operational art and tactics, and the nature and content of military planning.

Strategic defence and the counter-offensive are beginning to gain priority among the strategic kinds of warfare. Tacticians have been developing active forms and means of defensive operations and problems pertaining to protection from precision-guided munitions, tanks, combat helicopters, air landings and to augmenting protection of troops against fire.

These are but the first visible steps of the restructuring of socialism's military system. Motivated by the ideals of peace and humanism, it is on the threshold of new large-scale reforms.

The international community has been able to see that the Soviet Union is ready to proceed from declarations and policy statements to practical actions. In his UN address on January 7, 1989, Mikhail Gorbachev proclaimed the Soviet Union's decision to reduce unilaterally its armed forces. The Soviet Army has already reduced its armed forces by 500,000. As a first step, six tank divisions and air assault and assault-bridging units have been withdrawn from what was the GDR, Czechoslovakia and Hungary.

Based on the defensive doctrine, we would like to note another aspect of the emerging situation.

In the past, military doctrines (in particular, those of aggressive countries) were top secret, at least as regards

their operational plans, the coordination of war effort with allies and the preparation of the theatre of operations, if not in toto. Today, what was earlier discussed by a narrow circle of the professional military is widely publicised and debated by the academic community, the public at large and the mass media.

The promulgation of the basic points of Soviet military doctrine is wholly in line with the spirit of the times. It serves as an invitation for the NATO countries to begin a dialogue and wide discussion of military doctrines at political and military levels.

The early steps in this direction have shown that the comparison of military doctrines is a challenging task, and even more so, is their rapprochement. It is made even more difficult by the sides' dissimilar conceptual apparatuses and divergent ideological approaches and, still worse, by the reluctance of the West's officialdoms to adopt an essentially defensive doctrine.

Obviously, both sides have to make great efforts, display restraint and understanding of each other's interests, if positive results are to be achieved.

2. Consequences of Nuclear War as a Factor in the Formation of Military Doctrine

The following example is a graphic illustration of how the forecasts of the consequences of a nuclear war are related to a country's military doctrine.

With right-wing Republicans coming to power in the USA in the early 1980s, military experts increasingly stated that victory—and survival—in a nuclear war was possible. Among those who subscribed to this view were members of the US Administration, in many cases high-ranking officials.

In 1982 and 1983, there appeared a large body of literature based on research of US, West European and Soviet scientists in respect to the climatic and biological consequences of a nuclear war. These results were later dramatised in the materials of international scientific forums. Doctors joined the academic community to set up their own international organisation for the survival of humanity.

Nuclear Winter Phenomenon

The growing anti-nuclear movement exerted a powerful influence not only on world public opinion but also on political and military circles, including their conservative wings. Conservatives became far more reserved concerning the possibility of victory in nuclear war. They even had to retract their previous statements on the subject. And when the use of mathematical charts graphically depicted nuclear winter, the need to re-orient military doctrines on the prevention of war became increasingly obvious.

The phenomenon of climatic changes that has become known as nuclear winter has been widely discussed in the world. First, it was regarded as a key to a jigsaw puzzle. It helped provide a clear picture of the enormous damage mankind would sustain in a nuclear catastrophe. Second,

this phenomenon was beyond human grasp. A sane mind could not accept such a possibility. Discussion concerning nuclear winter continues until today. However now few people doubt that nuclear war would exert a considerable influence on the climate of both the Northern and the Southern Hemisphere. But what would be the extent of this influence?

Thus, nuclear winter has become one of the main factors to be considered today in elaborating military doctrines.

Whereas only 10 to 15 years ago it was believed that a nuclear war would cause hundreds of millions of deaths, it is obvious today that it is fraught with a global ecological catastrophe and the annihilation of civilisation. To arrive at this conclusion, scientists at the 1983 International Scientific Conference on the World After Nuclear War in Washington, made use of their own research and the results of the in-depth discussions of its possible consequences at representative international forums. "Science can offer the world no real defense against the consequences of nuclear war," stated 60 leading scientists in their Declaration on Prevention of Nuclear War.¹

Indeed, today the world's aggregate arsenal of nuclear weapons exceeds 50,000 nuclear charges, say scientists, and some of the charges are a thousand-fold as powerful as the bomb dropped on Hiroshima.

In effect, scientists dispelled the myth that there was no means of predicting the consequences of the explosions of a couple of dozens of nuclear charges, much less of hundreds of them. First, there is the experience of the use of nuclear weapons against two big cities, plus the results of tests and military exercises. In fact, this data is so well-known today that one can prognosticate a nuclear war on any scale with a good deal of certainty.² Second, models used as the basis

¹ Signed in Rome on September 24, 1982, and adopted by the assembly of presidents of academies of sciences from 30 countries and the Pugwash Committee. (*The Bulletin of the Atomic Scientists*, Vol. 38, No. 10, December 1982, p. 4.)

² The question how authentic and exact are the results in purely scientific terms is of vital importance. The research scientists are conducting in numerous countries constantly updates modelling parameters and

for the prediction of the biological consequences of nuclear war have small degree of uncertainty, and this can hardly result in overestimating the threat. Therefore, today research by scientists working in different fields offers a realistic picture of life on the Earth after a nuclear war.

Judging from the results of this research, nuclear war threatens to wreak havoc with the ecological systems essential for human life. Let us delve into the subject, using information gleaned by Soviet scientists. The basic consequences of nuclear war causing the degradation of ecosystems may be the following: radiation shock, fires, nuclear winter, radioactive contamination of soil and water, profuse "acid rains", and a rise in ultraviolet radiation following nuclear winter.

Each of the factors is extremely destructive for an ecological system. After a nuclear conflict, ecosystems would be simultaneously vulnerable to all or several of the factors that would attack life in concert.

According to scientists, a radiation shock may raise the level of ionizing radiation to 500-1,000 rad, enough to kill most mammals and birds and subject all conifers to severe radiation damage. Colossal fires will ruin a great part of the forests, steppes and crops. The nuclear explosions will send large quantities of nitrogen and sulphur oxides into the atmosphere, to descend later as "acid rains", the harmful effect of which on soil and water bodies is well-known.

But the greatest danger is radioactive contamination which is particularly harmful to flora and fauna. Even the most "optimistic" scientific forecasts say that it will inevitably produce a global ecological crisis.

The huge quantity of nitrogen oxides formed in nuclear explosions will cause the depletion of the ozone layer, the Earth's protection from ultraviolet radiation. Nuclear explosions in the thousands of megatons range may cause permanent damage to half the ozone in the Earth atmosphere.

improves the calculation methods in accordance with individual scenarios of a nuclear conflict. But the point of no-return before irreversible catastrophic changes in the Earth's biosphere and climate begin has already been determined; the nuclear threshold is of the order of 100 MT.

The growth of UV radiation may be of global nature. Considering this, warfare in the World Ocean is also dangerous as the ocean is more vulnerable than any other part of the biosphere. Most single-cell organisms, the bulk of the food chain in sea fauna, will die. All this devastation will be caused by just a single factor: radiation.

According to researchers, nuclear winter has a marked threshold nature. If a certain critical level is crossed, there will be severe climatic consequences. The "optimists" and "pessimists" are debating the quantitative value of the threshold, but even the extreme positions differ by several fold, not by an order of magnitude. The differences are due to imprecise assessments, classified information and diverse scenarios of the use of nuclear weapons. As is clear already today, whatever the actual parameters of nuclear winter, they are beyond the nuclear threshold, beyond the level of the survival of the biosphere and irreversible climatic changes.¹

Much of what the extreme right and militaristic forces in the West are doing amounts to an attempt to deny the effect of nuclear winter. Scientists, however, have irrefutable evidence that the damage would be irreversible.

According to them, the most important long-term effects of nuclear explosions are the following: contamination of the biosphere with radioactive explosion products; and contamination of atmosphere with aerosol particles and gaseous substances forming in explosions and attendant fires.

Descending from clouds, the products of a nuclear explosion cause the persistent radioactive contamination of an area of hundreds or even thousands of kilometres. A nuclear strike with an aggregate power of 5,000 KT in the medium latitudes of the Northern Hemisphere, is expected to form a zone with overall gamma radiation levels in excess of 400 to 1,000 ber throughout nearly all of Europe and the middle part of the North America.²

¹ *Mir Nauki* (The World of Science), Vol. XXX, 1986, No. 3-4, p. 19.

² *Climatic and Biological Consequences of Nuclear War*, USSR Academy of Sciences, Committee of Soviet Scientists for Peace and Against the Nuclear Threat, Moscow, 1987 (in Russian).

Both the explosion itself and the massive fires a nuclear strike inevitably starts, contaminate the atmosphere with aerosol products and harmful gaseous admixtures. A surface burst will send a huge quantity of earth (dust) into the atmosphere. A small part of it is vaporised to become a highly dispersive aerosol fraction. Most of the earth drawn into the air by the updrift, falls close to the explosion site, but highly dispersive aerosols will take weeks, months or even years to settle down on earth.

It follows from the foregoing that the large-scale geo-physical effects of nuclear war will initially cause an abrupt drop of temperature on the planet, change the radiation properties of the atmosphere and create a shield keeping off solar radiation. Later, temperature will rise and remain at high levels for years, the Earth's ozone layer will be ruined, and the planet will be subjected to increasing hard ultraviolet radiation.

There will be grave ecological consequences even during the earlier period, first of all because of a sharp drop in temperature and changes in the quantity of precipitation. The sharp drop in temperature will cause severe damage to plants, in particular during the vegetation period; a dust- and smoke-filled atmosphere will curtail photosynthesis and biological productivity. The subsequent warmer spell will cause droughts, the death of flora and fauna, the rapid spread of duckweed in many water bodies and an ecological explosion—the propagation of some forms of aquatic life. Concurrently, some of the species may continue to die off.

Therefore, nuclear explosions will have more than a localised destructive effect, in particular in massive nuclear strikes; indeed, they will cause exceedingly grave global biospheric disruptions (irreversible climatic changes, the depletion of the Earth's ozone layer, the disruption of the whole atmosphere) that will wreak havoc with the land-living and aquatic ecosystems.

Changing the length of warfare as the Western military press recommends would be irrelevant under the circumstances.

Scientists do not doubt that major long-term ecological

effects of nuclear war will cause a comparable or even greater damage and loss of human life throughout the world than the direct effects of nuclear blasts.¹

Human-Health Consequences of Nuclear War

The Committee of Soviet Scientists for Peace and Against the Nuclear Threat published an inquiry into the consequences for human health resulting from a nuclear conflict. The World Health Organisation published a report of its own that assessed the possible loss of life in a world nuclear war.

For example, in accordance with a quite convincing nuclear war scenario, a 1 MT nuclear attack on a city with a population of 1 million will cause 200,000 to 310,000 human deaths towards the end of the first day, with the number of injured, of all degrees of injuries, equal to 350,000-380,000. About 310,000 to 450,000 people will be unharmed (at least in the first hours following the strike). A global nuclear war is expected to have the gravest consequences.

The Swedish journal *Ambio* published a number of articles outlining the scenario of a global nuclear war in which the belligerents will employ nuclear devices with an aggregate power of 5,742 MT. According to this scenario, out of a population of 1,290 million, 750 million will be killed, 340 million injured or will sustain radiation damage, and only 200 million will escape injuries (most of the victims will be in the Northern Hemisphere).

Up to now, the strategy of military medicine has drawn exclusively on the experience of conventional wars or natural disasters in peacetime, note Soviet scientists Alexander Bayev, Nikolai Bochkov and Vladimir Ivanov. However, this experience cannot serve to calculate losses in a nuclear war. In a large city, nuclear explosions would kill

¹ Conclusions taken from Yu. A. Israel's report "Large Geophysical and Ecological Consequences of a Possible Nuclear War" in: *Climatic and Biological Consequences of Nuclear War*, Moscow, 1987 (in Russian).

one-third of its population on the spot and cause an equal number of injuries (burns, wounds, etc.). There will be 150,000 burns, 200,000 wounds and 30,000 multiple injuries in a city with a population of 1 million. Most hospitals and other medical institutions and medical supplies will be destroyed. Medical personnel will suffer along with the rest of the population or even more because medics will be subjected to dangerous levels of radiation while giving first aid to victims. Most of the injured may fail to receive any help both because of the shortage of doctors and nurses and the total disorganisation of the community services and transport. Radioactive contamination will also take its toll of life. Survivors will be in a state of panic or stupor. Under these conditions, chances for surviving medics to render any, at least first, aid to the victims of a nuclear catastrophe and to save their lives, will be practically nil.

The WHO International Expert Committee inquired into the consequences for human health of nuclear war and decided that no health service anywhere in the world could render efficient aid to hundreds of thousands of sufferers from the blast, thermal and nuclear radiation from the explosion of even a single 1 MT bomb. No national medical or sanitary service is capable of handling this emergency.

Direct losses, however, would actually only constitute the tip of the iceberg. Nuclear explosions will also affect land and water bodies outside the reach of the blast's immediate effects. It would be difficult to forecast the biological and medical consequences in these regions. They would suffer far less or very slightly from such primary effects of nuclear explosions as the blast and thermal radiation; but later, they would be affected by the sharp global change in weather and hydrological conditions (nuclear winter) and heightened radiation from the blasts per se, decay radiation and induced radioactivity.

However, the consequences of a nuclear catastrophe go beyond the well-investigated primary effects. There are long-term, global effects: the destruction of human habitat and the impairment of human health, in particular a

change in the genetic mechanism of the offspring of radiation victims (genetic consequences).¹

Thus, assessments on the basis of exceedingly simple models reveal that today's stockpiles of nuclear weapons are quite enough to destroy both man-made social and economic bodies and ecosystems. A world nuclear war would lead to a geological-scale catastrophe. The Earth's climate will change. The biosphere will be destroyed; forests and steppes burned; towns and industry demolished; and humans and animals will die. The face of the Earth will be disfigured beyond recognition, and the wounds will never heal. The survivors of the first strike will find themselves in Arctic frosts, with no water, food and fuel; they will be subjected to powerful radiation, impure substances, diseases, extreme psychological stress, and amid the chaos of a ruined civilisation and destroyed nature. A good insight into what things will be like is offered by "The Letters from a Dead Man" produced by Soviet Lenfilm studio.

Catastrophe-Fraught Illusions

It would appear that these well-grounded predictions are convincing enough to rule out the possibility of any conceivable nuclear war scenario and corresponding doctrines of military construction. However, information leaks seem to indicate that headquarters of NATO countries still possess various scenarios of a permissible or victorious nuclear war or are even working out new ones. Moreover, they are being updated to conform with the advent of third-generation weapons. In any case, the Soviet proposal for scrapping all nuclear arsenals by the year 2000 is being ignored in NATO military plans for the 1990s.

There is conclusive evidence that the US Defense and Energy Departments' main nuclear weapons laboratories are seeking to accelerate the development of new genera-

¹ A. A. Bayev, N. P. Bochkov, V. I. Ivanov; "Medical and Ecological Consequences of a Possible Nuclear Conflict", in: *Climatic and Biological Consequences of Nuclear War*, Moscow, 1987 (in Russian).

tion nuclear weapons which would not be so disastrous for the planet's climate and entire environment, i.e., which would once again make nuclear war a conceivable undertaking. Specifically, since the early 1980s, the USA has been increasingly active in developing neutron weapons, EMP weapons and X-ray laser.

Discussions of the consequences of nuclear war constitute one of the factors behind the development of the programmatic Strategic Defense Initiative that provides for the creation of a space-based missile defence of the USA, an umbrella intended to neutralise the other side's second strike potential. The spread of warfare into outer space would introduce changes in the picture of the climatic and ecological consequences of nuclear war by reducing the relative importance of some factors and activising others.

Shortly after the SDI programme was made public, Soviet and foreign scientists proved conclusively that, on the one hand, it is extremely dangerous since, designed to tip the nuclear balance in favour of the USA, it can escalate the danger of nuclear war. On the other hand, an absolutely impenetrable anti-missile shield is not possible, contrary to the expectations of the architects of SDI. In addition, research revealed that the space-based element of the Anti-Ballistic Missile system would also be quite vulnerable to various countermeasures, both active and passive. It also became evident that a malfunction of the supremely sophisticated and fully automated ABM system, however slight, could result in a nuclear catastrophe.

Hopes that the SDI could make a breakthrough in strategic thinking from a "deterrence of fear" to a "deterrence of survival" have proved to be wishful thinking. The point is that the SDI idea can nourish illusions for a surprise attack with impunity even at the R & D stage, and even more so, if individual elements and units of the system prove to be effective. Such an ABM system can only serve as a provocation for the other side. In no case would the other side tolerate the disruption of the military strategic balance. It would inevitably be restored, but on a higher level. More nuclear warheads will be targeted at the other

side's installations. There will be shorter time for response to a nuclear attack or accident.

The foregoing makes invalid another claim by SDI advocates: that the creation of a strategic ABM system lays the foundation for a non-provoking defensive doctrine and that in the struggle between defensive and offensive means of warfare the SDI will tip the balance in favour of defence.

There is another consideration concerning the link between the weapons under development and the expected consequences of their use with the formulation of military doctrines and concepts. Prior to the nuclear age, a country's adoption of weapons systems of doubtful effectiveness and of unrealistic warfare strategies meant, first and foremost, that the country ran the risk of being roundly defeated in the event of war. Militarily, if anything, its enemies stood to gain from the situation. Today, the situation must be viewed in a different light. A government which, failing to grasp the actual nature of war and the systems character of the strategic balance, adopts concepts and doctrines based on the possibility of "controlling" and "limiting the scale" of an armed conflict by means of mass destruction weapons, destines its country and its allies to certain destruction. Indeed, it may destroy mankind. The unity of the world and mutual security interests make it essential to gear military doctrines to the prevention and reduction of the threat of war and to view this task as central to military theory, practical military construction and the training and education of the armed forces.

The doctrinal thesis of a limited nuclear war propagated in certain US circles may provide another, quite important, subject of discussion. This concept has come to occupy a fairly important place in US theoretical research and is a significant element of US military and strategic planning. This raises the question of the consequences some scenarios of a limited nuclear conflict may have.

Prominent Soviet military leaders and theoreticians believe the idea of a limited nuclear war is inconsistent and extremely dangerous. If a limited nuclear war breaks out, it cannot but escalate into a global war with all the ensuing consequences. In fact, the theory of a limited nuclear war is

based on the false premise that it can be contained. Another aim is to make the idea of such a war palatable to the public and to convince it that a nuclear conflict can develop in accordance with some pre-arranged "rules".¹

Thus, it would not be correct or realistic to view the ecological, climatic or medical and biological consequences of nuclear winter in terms of a limited war. There is no way to limit the scale of a nuclear conflict, note many prominent Western experts (Robert McNamara, McGeorge Bundy, George F. Kennan, Gerard Smith). Moreover, the analysis of strictly conventional warfare—considering the development of modern military equipment and means of warfare—would tend to indicate the high probability of such a war escalating into an all-out nuclear one.

With wide use of automated troops and weapons control systems, global intelligence systems, reconnaissance-strike complexes and under conditions of complete mechanisation and high mobility of troops, automation is taking over many of the control functions that were previously performed by man. At the same time, the dynamism and sweep of warfare, rapid and sudden changes in situations, and jamming of communications greatly limit the possibility for the highest echelons of political and military leadership (because of the lack of time or information) to endorse or overrule quite responsible decisions of lower echelons. In extreme cases, this may cause warfare to escalate irreversibly to the stage at which tactical nuclear weapons would be employed.

A transition to warfare employing mass destruction weapons may be sudden and unpredictable. Thus the tendency, in order to prevent a sudden attack, to keep one's nuclear forces in a state of alert. This in turn considerably increases the possibility of a nuclear war and its escalation.

Conventional warfare does not rule out the possibility of a deliberate or accidental attack on the depots of nuclear or

¹ Address by Marshal of the Soviet Union S. F. Akhromeyev at the All-Union Conference of Scientists for Ridding Mankind of the Danger of Nuclear War, for Disarmament and Peace, *Vestnik Akademii Nauk SSSR* (USSR Academy of Sciences Bulletin), 1983, No. 9, p. 48.

chemical ammunition, launchers and nuclear warheads carriers, loaders and other equipment. Its effects may be similar to those of the use of mass destruction weapons and will cause an unpredictable response.

A conventional attack on the numerous European civilian power plants and units may produce a result virtually indistinguishable from a nuclear strike. The aftermath of such an attack would be far more grave than that of the Chernobyl disaster.¹ See below for a more detailed treatment of the issue.

Obviously, it is necessary to make every effort to counter attempts to rationalise and develop the concept of a limited nuclear war, as well as the development of third-generation nuclear weapons for they can nourish dangerous illusions concerning the possibility of a victory in nuclear war or of limiting the scale of a nuclear conflict. This concept can only be overridden by consistent steps to limit and reduce all kinds of nuclear weapons and to reach agreements on stopping nuclear tests and the production of weapons-grade fissionable materials.

Thus, the results of research into the global consequences of a nuclear conflict, including a limited one, prove beyond any doubt the bankruptcy of the view that one can survive nuclear war if far from its main theatres and that something like a victory in the classic sense of the word is possible in nuclear war (a view held by strategic planning authorities in some countries).

But there is evidence that the realisation of a nuclear catastrophe's potential scale has had an effect on the US Administration's official position concerning the possible outcome of nuclear war. The USA agreed to the signing of documents in Geneva, Reykjavik and Moscow which stated that nuclear war cannot be won. Thus, much of what the Pentagon and defence industry corporations continue to do, amounts to an attempt to override this statement.

Undoubtedly, today there is still a great danger that if a large US space-based ABM system becomes operational,

¹ See Vitaly Shabanov, "Conventional" Warfare: New Dangers", *New Times*, Moscow, 1986, No. 46, p. 8.

the US military may be increasingly inclined to make more active use of military force as the main political instrument. This would include unleashing wars, nuclear ones among them, and attempting to end them on terms favourable for the USA.

The Soviet political and military leadership denies the possibility of either side being able to win a nuclear war. The new edition of the Programme of the Communist Party of the Soviet Union states explicitly that there can be no winners or losers in a nuclear war. Both trends are reflected in the content of the present-day military doctrines of the world's leading countries.

3. Conventional War in Europe: Problems of Prevention

The advent of nuclear weapons has radically modified military strategy; a new concept has come into being, that of nuclear war, drawing a line between conventional and nuclear wars.

But while the very first A-bomb test made clear the catastrophic consequences of nuclear war, conventional war, by contrast, appeared all but innocuous conflict. In fact, strategic planning still includes it as a political instrument.

In any case, the leading quarters of a number of Western countries tend to discourage publications on the possible consequences of conventional war in Europe. Also alarming is the fact that the rate of development and production of ever new conventional weapons has not become slower. From 1945, there has not been a single year without a conventional war in this or that region of the world. New wars are believed to be quite probable in the future. All of this necessitates addressing ourselves to their dangerous consequences.

The Danger of Conventional War in Europe

There is a greater danger of war in Europe than somewhere else. For over three decades the continent witnessed military confrontation between the two most powerful military and political alliances, NATO and the Warsaw Treaty, which had armed forces equipped with well-stocked arsenals necessary to wage war, and were ready for combat. The continent's concentration of troops, armaments and materiel is still now higher than the world's average figure. The combined nuclear arsenals in the region total more than 10,000 nuclear charges. Thus comparing Europe to a powder-keg (or a nuclear missile silo) would appear to be quite apt. A point to stress is that conventional arms concentrated in Europe are of great combat potential.

In considering the possible scale and consequences of a strictly conventional war on the continent, one cannot but take into account the US announcement (and there are steps to implement) of the concept of an all-European conventional war. In 1982 US Secretary of Defense Caspar Weinberger described its content and parameters as follows:

- with nuclear parity between the USA and the USSR, the US strategic planning should be based on the assumption that conventional war is quite probable;
- if it breaks out, the USA and its allies cannot hope to win unless they have an advantage in conventional armaments;
- “deterrence would be weakened if the enemy were misled to believe that he could outlast us in conventional war”;
- “the decision on how large our overall defense effort ought to be must be based on much broader and more fundamental judgements than some arbitrary and facile assumptions about the number of ‘wars’, or fronts, that we must be prepared for”.

Though US European allies did not accept the US concept of a global conventional war without reservations, it remains one of the war scenarios in Europe and still influences NATO military programmes. Evidence of this are the not unsuccessful attempts to implant this concept into the flexible response doctrine.

Significantly, it was believed before the 1980s, that in the light of the huge superiority of the USSR and its allies in conventional armaments, a European war would only be brief (several days or weeks at the longest) and would soon lead either to the defeat of NATO or to the use of nuclear weapons early in the war with escalation into a global nuclear war being highly probable. Now the US concept of a global conventional war reflects the US government's commitment to the preparation of general-purpose forces for protracted warfare (in the light of the flexible response doctrine), with the use of advanced weapons systems on the basis of state-of-the-art technologies.

It should be stated for justice's sake, that in the 1960s Soviet military strategy also made allowances for the

possibility of a lightning conventional war or a short non-nuclear beginning of a "global nuclear war". In the Soviet Union, these views reflected the contemporary level of knowledge of the effects of nuclear weapons. They were based on the commitment to prevent rather than unleash war. As more and more objective information concerning the growing fighting effectiveness of conventional weapons and the consequences of their use became available, Soviet military policy-makers became firmly convinced that conventional war in Europe had to be avoided at all costs.

Today the US concept of conventional war reflects the government's commitment to training general-purpose forces to fight, in conformity with the NATO strategy of flexible response, protracted military operations with the use of advanced weapons systems (first of all, long-range and precision weapons) based on modern technologies.

These new doctrinal policies dramatise the question of conventional war's consequences in Europe and of its possible parameters in view of conventional arms further development.

Actually the entire post-WW II period saw the consistent sophistication of conventional weapons. It has been proceeding along the following lines.

First. Improved mobility and shorter reaction time. According to experts, reaction time has been shortened 3 to 4-fold, and in air-defence systems, by an order of magnitude.

Second. Greater power and effectiveness of non-nuclear explosive charges. Some are almost as powerful and effective as tactical nuclear charges. As a result, group destruction effect grows into mass destruction effect (napalm, fuel air explosives, pellet bombs, needle-shaped munitions, cluster bombs etc.).

Third. Greater accuracy of fire; the most graphic example of this trend is the development of precision land-based and air-based systems and of reconnaissance-strike complexes and fire means. These systems are as yet not mass-produced, but their prototypes have passed muster in local military conflicts.

Fourth. The most essential change is that weapons are taking on some of the "intellectual functions" (target acquisition, the assessment of target value, its destruction and the determination of the results), which formerly were the functions of a human operator who is now left with decision-making functions only.

For example, conventional reconnaissance-strike complexes are now becoming capable of taking part in "non-contact" actions, i.e. to operate unmanned, penetrating deep into the enemy positions to locate and destroy his combat facilities wherever they are.

All these developments gradually erode the difference between nuclear and conventional arms.

An increasing number of delivery vehicles (missiles, aircraft, etc.) can now be employed as a dual-purpose weapon, one capable of delivering both conventional and nuclear charges to the target. This applies not only to battlefield or operational-tactical weapons, but increasingly to intermediate-range delivery vehicles and intercontinental missiles. Whereas initially the nuclear tube artillery had quite different characteristics from those of the traditional artillery systems (conventional or chemical ammunition), later the distinction all but disappeared. On the other hand, with a higher accuracy and power of conventional ammunition, some of the missiles that were formerly intended to carry nuclear warheads, are now regarded as vehicles capable of carrying both nuclear and conventional warheads.

Retaining every characteristic of a nuclear weapon vehicle (short reaction time, destructive effect, quick action, reliability and mobility), some kinds of missiles can be used with non-nuclear warheads. Thus, the reduction of nuclear and conventional arms in Europe should be regarded as a single problem which concerns both the nature of ammunition and of certain classes and types of weapons.

There is, however, another dimension to the issue. "Clean" warfare would certainly be problematic in the event of a conventional war in Europe because of its stock of nuclear power plants, chemical factories and warehouses storing poisonous and toxic substances.

It is common knowledge that the number of regions in Europe that house such risky activities is growing steadily. This makes them increasingly vulnerable even in a strictly conventional war.

The following table shows Europe's nuclear energy picture in 1985¹:

Country	Nuclear power plants (operational)	Nuclear power units	Aggregate capacity, MWh	Nuclear power plants under construction
Belgium	6	6	3,457	2
Bulgaria	4	4	1,680	4
Finland	4	4	2,190	—
France	41	41	33,258	23
GDR	5	5	1,760	8
FRG	19	19	16,110	7
Holland	2	2	500	—
Hungary	2	2	764	2
Italy	3	3	1,297	3
Poland	—	—	—	2
Romania	—	—	—	2
Spain	7	7	4,650	7
Sweden	12	12	9,470	—
Switzerland	5	5	2,868	2
United Kingdom	18	35	9,963	5
Yugoslavia	1	1	632	1
Total	129	146	88,599	68

There are 15 nuclear power plants with a total of 43 nuclear power units in the European part of the USSR.

Thus, in 1985, there were 144 nuclear power plants with 189 nuclear power units in Europe. If this number is multiplied by the area of radioactive contamination that

¹ Data from the magazine: *Atomnaya tekhnika za rubezhom* (Nuclear Technology Abroad), No. 6, 1985, pp. 25–31.

The source notes that in late 1984, 303 nuclear power units with an aggregate capacity of 202,982 MWh were operational in the world, and another 158 units with an aggregate capacity of 137,766 MWh were under construction. Also, 27 nuclear power units with a capacity of 27,441 MWh were ordered, and another 15 units with an aggregate capacity of 12,082 MWh were planned to be built..

humans would not be able to inhabit in case of an explosion, the total contaminated area would be equal to 388,800 sq km. The break-down of only one of Chernobyl's four reactors raised a number of unpredictable and new problems. It turned out that the radioactive contamination pattern following nuclear power plant's disaster is very different from that after the explosion of nuclear ammunition. This difference is due to the salvo-like releases of radioactive products in the form of hard radioactive composites, gaseous and aerosol radionuclides and the lengthy radioactive contamination of air, earth, water, foodstuffs, inhabited areas and humans.

The table below compares the consequences of the explosion of a nuclear charge and those of a release of radioactive matter following the break-down of a hot reactor.

Reactor break-down	Nuclear explosion
1. Contaminated cloud formed at a height of 2 to 3 km	Cloud formed at a height of 20 to 30 km or more
2. Contaminated areas taking from 2 to 3 days to several weeks to form	Not longer than 10 to 15 minutes
3. High concentration of radionuclides in gaseous/aerosol cloud (10,000-15,000 r/h at distance of 2 to 3 km from the nuclear power plant)	Low concentration
4. Spotty, variable contamination of terrain (area and configuration unpredictable)	Predictable contaminated area
5. Slow decline in activity of sorbitised radionuclides that fell to the earth	Rapid decline in intensity of gamma radiation

As a result of the Chernobyl accident radioactive contamination zones in which the radioactivity dose an individual could receive was equal to 2 ber, with varying exposures, had areas as shown in the next table.

It goes without saying that a non-nuclear strike on a nuclear power plant may be as dangerous and contaminating as the use of a radiological weapon.

Period during which dose of 2 ber accumulates (from the moment of accident) Contaminated zone area, sq km

one week	5,600
two weeks	5,100
one month	4,600
two months	4,100
six months	3,100
one year	2,300
two years	1,700
five years	800
ten years	300

The Chernobyl accident showed that runaway atomic energy poses a formidable threat to life even in cases when radioactive contamination of terrain is not preceded by shock wave and numerous conflagrations.

The destruction of chemical facilities (chemical factories and chemical ammunition and toxic substance depots) has equally perilous consequences. The destruction of such facilities may produce vaporized virulent poisonous and toxic substances as well as their combustion products which would hit everything around. It should be kept in mind that the standard gas mask issued to troops does not offer long-term protection to the wearer. The most dangerous agents are chlorine and ammonia.

See the table below in respect to the possible consequences of the destruction of chemical facilities:

Poisonous substances	Size of Destruction		
	Depth of dissemination zone (km)	Area, sq km	Effect
Chlorine (2,000t)	34-45	up to 1,000	primary cloud
	45-60	up to 2,500	secondary cloud
Ammonia (10,000t)	4-6	up to 16	primary cloud
	10-16	up to 170	secondary cloud
Phosgene (30t)	13-20	up to 150	primary cloud
	14-20	up to 260	secondary cloud

In recent times, nuclear power plants, chemical facilities and poisonous substance warehouses built in all countries receive impact protection. This may more or less alleviate the effects of the destruction of potentially dangerous installations and limit the area of contamination. It is quite obvious, however, that this step cannot do much to make conventional warfare less dangerous in Europe.

"The development of conventional arms is attaining drastically new dimensions as their power, accuracy, and range are growing and they are becoming faster to use," said Soviet Defence Minister, General of the Army Dmitri Yazov. "The destructive consequences of conventional war have virtually become comparable with those of nuclear war."¹

There is still another distinguishing feature of conventional war: its early stage will witness the scope and intensity of warfare that will be drastically different from the early periods of previous wars. Its outcome may have a tremendous effect on the later stages of the war.

The possible consequences of conventional war in Europe shatter the claims of some in the West to the effect that the Warsaw Treaty's suggestion of a total ban on nuclear weapons paves the way to conventional war. This claim is untenable because, first of all, the Warsaw Treaty nations note the connection between the prevention of both nuclear and conventional war; and second, in the light of the foregoing, conventional war in no way is better than nuclear war.

Methods Facilitating Agreements

With talks on the reduction of armed forces and armaments in Central Europe entering their sixteenth year, this formidable experience demonstrates that the bone of contention lies in the problem of initial data to assess the balance of forces, and how and with what instruments the existing asymmetries and imbalances should be determi-

¹ *Pravda*, February 8, 1988.

ned in order to use this as a basis for the reduction of armaments.

The paucity of results and the possible destabilisation of the military and political situation in Europe, led the Soviet Union and its European allies to make a number of constructive proposals at the meeting of the Warsaw Treaty countries' Political Consultative Committee in Sofia in October 1985. Specifically, the participants suggested that the USSR and the USA commit themselves to refrain from producing new kinds of conventional arms the destructive potential of which would be comparable with that of mass destruction weapons, and to freeze their standing force strength they had on January 1, 1986, in Europe and elsewhere outside their national territories. Also, they suggested a number of measures to facilitate talks to reduce conventional arms and curb the naval arms race.¹

The search for a stable military and strategic balance and easier approaches to the problems of the limitation and reduction of armed forces and conventional arms in Europe led the Warsaw Treaty member-states to appeal to the NATO member-states and all European countries.

Adopted in Budapest in July 1986, this appeal proposed measures for the continuation of a programme for reducing armed forces and conventional arms in Europe. It also provided for qualitative changes in the nature of military confrontation in Europe, thus becoming nothing short of a breakthrough in this field. The reductions were to be done in such a manner as to eliminate force asymmetries, reduce the threat of a surprise attack and rule out large-scale offensive operations.

Today we are pleased to announce that in late January 1989 the Concluding Document of the Vienna Meeting of Representatives of the States-Participants in the Conference on Security and Cooperation in Europe was published. Opened on November 4, 1986, it worked for 27 months to develop a Mandate attached to the Concluding

¹ See: Conference of the Warsaw Treaty Political Consultative Committee, Sofia, October 22-23, 1985, Moscow, 1985, pp. 14, 15 (in Russian).

Document concerning the talks on conventional armed forces in Europe that reflected the approaches suggested in the Budapest Appeal of the Political Consultative Committee.

Launched in March 1989, the Vienna talks are proceeding in a new climate. There have been favourable changes in the political climate all over the world, including Europe. The USSR and the other Warsaw Treaty countries have announced a unilateral reduction of armed forces and armaments. Moreover, the mandate itself of the talks is explicit and unambiguous.

Nevertheless, negotiators and experts are confronted with a number of military-technical and procedural difficulties. This fact cannot be ignored, however bright the hopes for success may be.

In this connection, we would like to present some considerations concerning the set of instruments to be employed at the talks and the use of the methods for the comparison of the combat effectiveness of various military elements and kinds of armaments based on professional experience.

Anticipating criticism that we deliberately complicate the process of talks by introducing mathematical models, we would like to note that this method is an instrument for working out political and strategic decisions, but it does not by any means override their primacy. At the same time, an examination of the balance of forces and the comparison of the sides' potential—with diametrically opposed tasks (i.e., instead of predictions concerning the outcome of a battle, a search for possibilities to prevent it)—will be of considerable use.

It is true that modern conventional weapons systems are more sophisticated and diversified than those of the Second World War vintage; the comparison of the weapons is much more difficult, etc.

For example, at the end of the war an army division's standard organic equipment on the average included about 50 kinds and types of equipment together with ancillary instruments. A modern motorised infantry division is equipped with five or six times as many kinds of weapons

and equipment. Also, some of the NATO countries possess weapons systems that have no direct counterparts in the Warsaw Treaty armies and vice versa.

However, actually, the problem involves much more than the great diversity of weapons systems in army divisions that can become a unit of calculation in considering the issues of arms reduction. It is important to keep in mind that a division hardly ever fights independently; it normally fights as part of an army or corps, and an army or corps, as part of an army group or front. Consequently, an integral armed forces grouping in Europe would include a great number of weapons systems and equipment, and computer-aided mathematical models and specialised methods are required to appraise them.¹

Still another problem is connected with the elaboration of the principles (concepts) of the curtailment of conventional arms. Different approaches may be used: proportionate, asymmetrical and equal numerical.

A policy based on eliminating asymmetries and imbalances in individual kinds of arms as the first stage in the arms reduction process appears quite justified. It opens up prospect for unequal numerical second-stage reductions. We observe here the well-known rule of how a superior side consolidates its advantages (an analysis of it was already made by Lev Tolstoy in his novel *War and Peace*²).

In the light of the foregoing, a proportionate reduction without the elimination of asymmetry would only consolidate the imbalance of forces.

We realise that the negotiators confront formidable difficulties here, in particular considering the fact that the asymmetry in Warsaw Treaty and NATO forces exists not

¹ According to some estimates, their number today in a US field army is approximately 5,000. Armed forces currently employ about 400 kinds of engines and 250 kinds of fuel.

² Describing the disposition of the Battle of Borodino, Tolstoy wrote: "For Kutuzov this was a mathematical certainty, just as in a game of draughts if I have one man less and go on exchanging I am bound to lose, and so I mustn't exchange. When my opponent has sixteen men and I have fourteen am only one-eighth weaker than he, but when I have exchanged thirteen more men he will be three times as strong as I am." (L. N. Tolstoy, *War and Peace*, Vol. 2, Penguin Books, 1978, p. 896.)

only in weapons systems of one service but also, and chiefly, in various domains (sea, air and land).

The January 30, 1989 Statement of the Committee of Defence Ministers of the Warsaw Treaty Countries makes this point quite clear. It contains tables revealing that the imbalance and asymmetry in individual weapons systems developed in the course of history as one side's response to the development of the other side's armaments. For example, NATO's emphasis on, and superiority in, strike aircraft, combat helicopters, aircraft carriers and cruise-missile ships compelled the Warsaw Treaty countries to build large air-defence forces and fighter-interceptors. It is in these defensive means of warfare that this imbalance is in favour of the Warsaw Treaty countries. Conversely, the Warsaw Treaty's advantage in tanks¹ intensified the NATO build-up of anti-tank missile systems and helicopters equipped with anti-tank missiles.

An equitable assessment of these dissimilarities is also difficult without an appropriate set of methods.

Comparing the procedure for the elaboration of agreements on the limitation of nuclear and conventional arms (if the processes were unconnected), one has to admit that the reduction and limitation of conventional arms is far more complex than that of the nuclear. There are a number of reasons for this.

First, usually only two sides take part in direct talks on the limitation of nuclear weapons (though the other nuclear powers are also watching from the sidelines). Under these conditions, one side's consent to the proposals of the other means that they will most probably reach final agreement.

But as is known, talks on the limitation and reduction of armed forces and conventional arms in Europe involve 23 countries, and another 12 show a considerable interest in the outcome. Unanimity is much harder to achieve in this situation; there is a need for compromise and concessions.

¹ Incidentally, few researchers note that the Soviet tank advantage in Europe dates from the late 1940s and resulted from US monopoly of atomic weapons. Soviet military strategists then regarded tanks as a means of protection of personnel against blast, nuclear and thermal radiation, and certainly not as an offensive weapon.

Second, the agenda of the talks on the reduction of armed forces and conventional arms in Europe focuses on protecting the interests of national security of the participating countries. Strictly national interests cannot always be fully reconciled with the interests of international (in this case, European) security.

Presumably, the translation of expert disputes on a number of complex technical problems into the language of mathematical models and calculations may be a great help at the talks and for reaching agreements.

These are methods for correlating (comparing) the fighting capabilities of fire and military units (elements of troops) that have long been used as mathematical support of military operations.

Here, a fire unit stands for an individual kind of weapon or equipment (artillery piece, tank, aircraft, missile launcher, etc.) with its crew (complement), and a military unit, a small or large unit, comprising either similar fire units (homogeneous military unit), or units of one kind (purpose) but different types (different-type military unit), or units of different kind and type (heterogeneous military unit).

An air-force regiment armed with one-type aircraft is the example of a homogeneous military unit; an anti-tank artillery brigade armed with anti-tank guns and anti-tank guided missiles, the example of a different-type unit; and a motorised rifle division – of a heterogeneous unit.

Let us assume that the figure CP_a is the numerical characteristic of the combat potential of the military unit A under certain conditions.

The principal characteristic of combat potential is that it is a denominate quantity. However, there may be different ways to determine the capabilities of a fire or military unit depending on their missions and conditions under which they operate.

For example, if we know from experience that in an army-scale defensive operation on the Central European theatre, 1 anti-tank system of the type A can destroy 1.5 tanks until it is disabled, we assume that $CP_a = 1.5$ tank. The combat potential of a 152 mm howitzer battalion may

be described as an area on which it can reliably neutralise enemy's manpower within an assigned period of time; that of a fighter plane, as the mean number of successful attacks per sortie in the regimental formation; that of a motorised rifle division in defence, as the number of equal-strength enemy division it can contain.

With most fire and military units accomplishing different combat missions (for example, a motor rifle division in defence or offence), it would be quite difficult to characterise their capabilities in one figure. Thus, instead of estimating the capabilities of these units in absolute figures, they may be compared by means of the so-called combat commensurability coefficients.

Let the figure C_{ab}^R (it shows how the combat potential of the unit B relates to that of the unit A under the given conditions R) designate the combat commensurability coefficient of the units A and B .

For example, if in a front offensive operation on the Central European theatre (condition R), the combat potential of an A -type division is twice that of a B -type division, $C_{ab}^R = 2$ (A is twice stronger than B).

It should be stressed that the capabilities of the units to be compared may be brought into play in different fashions (under different conditions of warfare and when different missions are undertaken). Suffice it to refer to the well-known maxim that one division on the defence can contain an attack by two or three enemy divisions of equal strength equipped with conventional weapons.

It follows from this that combat potentials and combat commensurability coefficients cannot be used independent of the conditions they are intended to describe.

Here is another consideration pertaining to the properties of the combat commensurability coefficient.

In general, the coefficient of combat commensurability of the units A and B is equal to the ratio of their combat potentials:

$$C_{ab} = \frac{CP_a}{CP_b}.$$

If the CP_b designates the capabilities of the unit B and

CP_a , those of the unit A , the expression $C_{ab} = \frac{CP_a}{CP_b}$ shows how the capabilities of the unit A relate to those of the unit B .

The combat commensurability coefficient is, first, a non-dimensional quantity; second, is reversible (if A is twice better than B , B is twice worse than A); and third, the quality of "transition" (if the combat commensurability coefficient of the unit A is equal to that of the unit B , their relations to a third unit, C , are equal).

Judging from the accumulated experience of calculations, the combat commensurability coefficients of fire or military units may be determined in a variety of ways, each with inherent strong and weak points. Basically, the following are employed:

- method of comparing performance;
- method of comparing fighting efficiency;
- method of comparing required quantities of forces;
- method of modelling the battle of fire units until their mutual destruction.

Method of Comparing Performance

This method is based on comparing a number of qualitative and quantitative characteristics of fire or military units.

These characteristics for an army division may include: manpower strength; the number of tanks, artillery, anti-tank weapons, anti-aircraft hardware, etc. Fighter bombers, on the other hand, may be compared for speed, range, bomb load, the quantity of guns and missiles, the presence of electronic countermeasures, etc.

To compare the units A and B , the first step is to note the values of the selected characteristics $a_1 \dots a_2 \dots a_n$ of the unit A and the corresponding values of the characteristics $b_1 \dots b_2 \dots b_n$ of the unit B where n is the total of selected characteristics.

A second step is the analysis of the binary relations of the characteristics $(a_1:b_1)$, $(a_2:b_2) \dots (a_n:b_n)$. With this, if "the bigger a characteristic, the better", the relation of the

characteristic of the unit *A* to that of the unit *B* is taken, and if "the smaller a characteristic, the better" (for example, target acquisition time), the relation of the characteristic of the unit *B* to that of the unit *A* is taken. Such relations may be described as normalised and be designated $(a_1 \dots b_1) \dots (a_n \dots b_n)$.

If the above relations are close to each other, their mean value is taken, and recognised as the approximate value of the coefficient of combat commensurability of the unit *A* and the unit *B*.

If normalised relations are substantially dissimilar or if some of the relations are far more important than others, it is recommended to use a "formula of weighted average normalised relations of characteristics being compared".

This method is the simplest, most accessible and illustrative of all. Its weak point is its apparent approximated nature resulting from the approximate (expert) determination of the share values of compared characteristics, and from the assumption that the combat capabilities of compared units are directly proportional to the relations of their characteristics, which is not normally observed.

Example of Comparison of Type *A* and Type *B* Tanks

Characteristic	Value of characteristic		Normalised value of characteristic		Weight of characteristic (per cent)	Product (per cent)	
	a_1	b_1	a_1	b_1		$q_1 a_1$	$q_1 b_1$
1. Armour thickness (mm)	210	300	0.7	1	30	21	30
2. Cannon calibre (mm)	90	130	0.69	1	25	17	25
3. Usable rate (round per minute)	2	1.6	1	0.8	20	20	16
4. Gun stabilisation	no	yes					
5. Tank load of munitions (pcs)	80	64	1	0.8	10	10	8
Total					100	68	94
Combat commensurability coefficients							
					$C_{ab} = \frac{68}{94} = 0.72$		
						$C_{ba} = \frac{94}{68} = 1.39$	

Method of Comparing Fighting Efficiency

In accordance with this method, the unit A is considered as better (worse) than the unit B as the coefficient M_a of the fighting efficiency of the unit A is more (less) than the corresponding coefficient M_b of the unit B

$$C_{ab} = \frac{M_a}{M_b}.$$

Example. It is necessary to determine the combat commensurability coefficient of the surface-to-air missile complex of type A and type B , if flying a pre-assigned path the complex of type A brings down 8 enemy planes on the average, while type B , only 6 planes.

According to the condition, $M_a = 8$ planes, $M_b = 6$ planes,

$$C_{ab} = \frac{M_a}{M_b} = \frac{8}{6} = 1.33.$$

The advantage of this method is the clear physical meaning of the calculation being made. In addition, this method may rely on the well-developed apparatus of methods of the fighting efficiency theory and on the experience of operations.

Its disadvantage is that the existing fire and military units are normally multipurpose ones, and evaluating their fighting efficiency in one coefficient is quite difficult.

Method of Comparing Required Quantities of Forces for the Accomplishment of Combat Missions

According to this method, the unit A is considered as much better (worse) than the unit B as the quantity of the forces of the unit B required to accomplish a certain combat mission or a combination of missions is less (more) than that of the unit A for the accomplishment of the same mission.

Example. It is necessary to determine the combat commensurability coefficient of a fighter plane of type A and a surface-to-air missile complex of type B , if 30 fighters or 20 surface-to-air missile complexes are required to hit, with a predetermined reliability, 10 enemy planes flying at a low

altitude (task Z_1) and 5 planes flying at a medium altitude (task Z_2).

Solution. Task Z_1 and Z_2 shall be considered one complex task. Then $I_a^z = 30$, $I_b^z = 20$, and the entire expression:

$$C_{ab} = \frac{n_b^z}{n_a^z} = \frac{20}{30} = 0.67$$

This method can be used to compare both fire and military units. Any delegation expert can calculate these very simple sums.

Method of Modelling the Battle of Units Being Compared Until Their Mutual Destruction

The essence of this method is the selection of such numbers of the opposing units that destroy each other in their battle model.

The most economic fashion of such a selection may be through the mathematical model of the battle, the simplest example of which is found below.

Mathematical Model of Battle of 100 Tanks of Type A Against 200 Tanks of Type B

Battle time (min)	Initial Number and Loss of Sides at Next Step of Battle Modelling		Ratio of Forces of Sides at Beginning of Next Step	
	Side A ($M_a = 0.4$ tank/min)	Side B ($M_b = 0.1$ tank/min)	quantitative	qualitative
1	100	200	1:2	1:1
	20	40		
2	80	160	1:2	1:1
	16	32		
3	64	128	1:2	1:1
	12.8	25.6		
4	51.2	102.4	1:2	1:2
	etc.			

As is clear from the table, the indication of the balance of forces is the constancy of the ratio of the sides' forces in the

course of the battle. Thus, in selecting equivalent numbers of opposing units, it is quite unnecessary to bring the "battle" to their mutual destruction. It is enough to take just a few steps in pursuit of the constancy of the quantitative relationship. It is particularly important in using the physical modelling of actions with the participation of troops and the simulation of the destruction of fire units by one another.

The advantage of this method is its clear physical meaning and direct connection with supposed hostilities (scenario), for which the estimate of the ratio of the sides' combat power is made. Importantly, the mathematical or physical model of a battle can provide a fairly complete picture of control, supply, etc. problems. Thus, this method is advised to be used more widely. Its weak point is that it cannot be used to compare units that do not destroy each other in the course of battle.

To determine the combat potentials of individual fire and military units, they can be compared with a standard fire unit.

In accordance with this method, the combat potential CP_a of the military unit A is determined as the product of its combat commensurability coefficient, C_{ast} , as compared with the standard military unit A_{st} ¹ by the combat potential of the standard unit CP_{ast} :

$$CP_a = C_{ast} \cdot CP_{ast},$$

which is a direct consequence of the quality of the combat commensurability coefficient.

The selection of a standard fire unit depends on the nature and scale of the hostilities under consideration. A

¹ Depending on the conditions, the conventional combat potential of a weapon system, tank T-55, T-72, etc., a 122 mm howitzer or a 122 mm howitzer division may be used as a standard fire unit in comparing combat potentials. The standard unit of calculation may be the kWh of energy materialised in some weapons system or a sum of systems (artillery division or tank company, etc.). Politologists should not be upset over the methodological or political incompatibility of such a calculation as the standard unit is quite an arbitrary entity. However, it helps solve disputes in comparing the larger military units (brigades, divisions).

division of a certain type may be selected as the standard or calculation military unit for army operations, and a battalion on IFVs, etc., for a division's battle.

Coefficients of combat commensurability of military units are determined in a basically similar fashion save certain distinctions.

Thus, in employing the method of comparing characteristics, manpower strength, the quantity of armaments, etc. can be used instead of the performance characteristics. As armaments are compared, their quality should also be considered, i. e., by means of the combat commensurability coefficient of the fire units under comparison. As with the comparison of fire units, the merit of this method is its simplicity and clarity.

We have summed up the accumulated experience of determining the comparative quality of the sides' combat power. All things considered, this determination should be based on the headquarters-used methods for the assessment of the capabilities of the weapons (military hardware) of units, large units and troop groupings that are being vigorously developed in all armies. However, there is still much room for the improvement of the methods; one way to do this work is during the joint experiments the negotiators' experts may conduct in the future.

In conclusion, we can say: one cannot ignore specific and intractable aspects of disarmament problems in the European region, but they should not by any means be overestimated. Thus, we believe that the discussed methods can be of help for expert estimates in negotiations.

The new statement by the Soviet Union concerning the reduction of armed forces and conventional arms in Europe and the measures it takes to bring manpower strength, structure and groupings of troops in conformity with the defensive military doctrine, is evidence that the USSR not only has proclaimed the concept of a common European home but also undertakes to bring this concept into life and spare the continent from the threat of both nuclear and conventional war.

4. Strategic Offensive Arms Reduction and Strategic Stability

Under present-day conditions, both the opposing sides and the whole world would have to pay very dearly should a crisis in world affairs escalate into a global military conflict. However, there is a growing influence of military strategic planning bodies on crisis situations in various regions of the world of confrontation between the USSR and the USA and their closest allies. At this juncture, the assessment of military balance and strategic capabilities and intentions of the sides may compel them to display discretion in the resort to arms, including nuclear ones. On the other hand, it may induce them to cross the point of no-return in an attempt to gain advantage by surprise, seize the strategic initiative or out of fear lest the enemy make such a move.

At the highest, nuclear missile, level of military equilibrium, central to stability are, on the one hand, the Soviet and US military programmes, military doctrines and strategic and operational forms of the use of nuclear weapons, and on the other, talks and agreements between the great powers to limit and reduce armaments and to lessen the probability of a military conflict.

By now the nuclear arms race has developed into an extremely potent source of enmity, mistrust, and political tension aggravating regional conflicts and making the sides increasingly intransigent. At the same time, agreements on the limitation and reduction of armaments facilitate the relaxation of tensions and a search for mutually acceptable paths towards the peaceful settlement of regional conflicts as well as have a direct influence on the alignment of military forces, including its degree of stability.¹

¹ See: A. G. Arbatov, A. A. Vasiliev, A. A. Kokoshin, "Nuclear Weapons and Strategic Stability (Article 1), *SShA-ekonomika, politika, ideologiya* (The USA: Economy, Politics, Ideology), 1987, No. 9, p. 4.

Strategic Balance as a Factor of Stability

The present-day military strategic balance reflects the quantitative and qualitative correlation of forces and the factors making for the strategic situation. It may be described as a dynamic macrosystem, the core of which is formed by the nuclear armaments, above all, strategic, offensive ones. At the same time, its level of stability depends considerably on the conventional armed forces and armaments that have been developing at an accelerated rate in recent times—in particular as a result of the nuclear stalemate. The system also incorporates material and technological resources and the opposing sides' institutions and agencies which can affect the possibility of the outbreak or prevention of a nuclear conflict.

Political and socio-economic factors play a primary role in determining the dynamism of the development of the macrosystem of military strategic balance. In addition, another important factor is the close relationship between the sides' offensive means each examined separately and between the defensive and offensive means of the opposing sides and in either side's armed forces.¹

The advent of nuclear arms has given offensive means a tremendous advantage over defensive ones. This was and remains the essence of the global military-political situation for the foreseeable future. As a result, the equilibrium of military strategic power or the parity between the USSR and the USA, between the Warsaw Treaty Organisation and NATO, with the existence of nuclear weapons, cannot in any way be reduced to the approximate equal numerical strength. The huge destructive power of this weapon minimises to a certain degree the differences in the size of each side's arsenal and the performance characteristics of

¹ See: Ye. Velikhov, A. Kokoshin, "Nuclear Weapons and the Dilemmas of International Security", *Mirovaya ekonomika i mezhdunarodniye otnosheniya* (World Economy and International Relations), 1985, No. 4, p. 34; *Large-Scale ABM System and International Security. Report of the Committee of Soviet Scientists for Peace and Against the Nuclear Threat*, Moscow, 1986, p. 5 (in Russian).

individual components of their offensive forces. In other words, the resultant military strategic balance has a considerable dynamic range.¹ The presence of such a range, and the knowledge of its scope and limits create quite important conditions for manoeuvre at talks on the limitation and reduction of nuclear weapons and for the elaboration of bold and flexible approaches to agreements.

At the same time, nuclear weapons are not immune from the rivalry between offensive and defensive means though their nature imparts to this rivalry a markedly new dimensions.

Technologically and tactically, nuclear weapons remain a predominantly offensive means (with very few exceptions such as interceptor missiles carrying nuclear warheads in ABM and air defence, and nuclear mines). Rivalry between offensive and defensive weapons takes the form of competition between the kill potential and accuracy of nuclear means and their increasing survivability (including that of warning, control and communications systems). In the latter case, survivability may include, for example, a growth in explosion-proof quality of missile silos, their increasing invulnerability through deployment of mobile silo launchers, the concealment of missile submarines, and the climb rate and protection of bombers. Another possibility is the development of active defence systems of offensive armaments of limited efficiency, for example, ABM systems protecting silos, control centres and other installations.

In contrast to the technological, operational and tactical aspects, in strategical contexts the rivalry of offensive and defensive weapons in the nuclear field mainly takes the form of the changing relationship of the powers' capability for making a first (pre-emptive) and retaliatory strike.

¹ See: R. Sagdeyev, S. Rodionov, "On Strategic and Economic Consequences of the SDI", *Mirovaya ekonomika i mezhdunarodniye otnosheniya*, 1986, No. 5, p. 20; *Strategic Stability Under the Conditions of Radical Reductions of Nuclear Weapons*. Committee of Soviet Scientists for Peace and Against the Nuclear Threat (Research headed by R. Z. Sagdeyev, A. A. Kokoshin), Novosti Press Agency Publishing House, Moscow, 1987, p. 4 (in Russian).

Quite a while ago military theoreticians noted that one of the decisive new features of the strategy resulting from the advent of nuclear weapons and long-range, particularly missile, delivery vehicles, is the capability for the destruction of a country's vital assets—its population, economic potential and administrative bodies—even before and in addition to the annihilation of its armed forces.¹

However, the USA's loss of its monopoly of nuclear weapons made it possible for the other side's armed forces to destroy the enemy's vitally important centres bypassing its armed forces which made up for the former function of direct warfare against the enemy's army and navy in order to defend one's people and state. The status quo in relations between the nuclear powers was restored. However, it assumed a drastically new form. Unless the other side's armed forces, above all its nuclear capability, are routed its population and economy cannot be destroyed. This is so because the enemy can launch a devastating missile nuclear strike against the aggressor "over the heads" of his army and navy and not because his population and economy enjoy the immediate protection of his troops.

A successful attack and victory become an absurdity if the aggressor cannot prevent a retaliatory nuclear strike or at least reduce its destructive power to an acceptable level. Therefore, the effectiveness of offence is gauged first of all by its capability to hit the other side's nuclear means and their control system both on an absolute and on a relative scale. In turn, the defence potential is primarily expressed in the capability of strategic means to survive even following a surprise attack and to launch a crippling retaliatory strike. This is the defence's chief asset within the correlation of nuclear forces wherein defence poses as a deterrence potential for a probable aggressor, not in the traditional form of literally repelling such an aggression.²

¹ See, for example, *Military Strategy*. Ed. by V. D. Sokolovsky, 3rd edition, Voenizdat Publishers, Moscow, 1968, p. 233 (in Russian).

² A. G. Arbatov, A. A. Vasiliev, A. A. Kokoshin, "Nuclear Weapons and Strategic Stability (Article 1)", p. 7.

The foregoing may provide an angle for one to compare the nuclear forces of the USSR and the USA. With a considerable US military advantage from the late 1950s to the mid-1960s, strategic offence must have been far stronger than defence. This led to quite an unstable military balance and, consequently, to a high level of political tensions and a high probability of nuclear war. However, instability objectively also threatened US interests despite its military superiority. Even then, the more far-sighted US political leaders and experts began to realise that the US potential for a disarming first strike offered the other side a strong incentive to take a pre-emptive step which would have been catastrophic for the USA despite its strategic superiority.

Beginning in the latter half of the 1960s, the military situation began to stabilise itself as a result of the measures the Soviet Union was compelled to take to build up its strategic potential. During the 1970s, the increasing survivability of nuclear means and the combined influence of other tendencies in military technology on the general military balance between the USSR and the USA, with an approximate numerical parity anchored in SALT I and SALT II, led to a considerable growth in the capabilities of both powers for a retaliatory strike. To be sure, none of the trends presents itself in a pure form in such a multifaceted sphere as strategic balance. A multiple rise in the number of nuclear warheads in the two countries' strategic forces, the development of new weapons systems, and the US projection of certain destabilising concepts in the spirit of a limited nuclear war adversely affected the stability of nuclear balance.

Generally speaking, however, considering the physical parameters of equilibrium and the deployed strategic forces of the sides, one could conclude that the period witnessed a considerable trend towards the stability of the military strategic balance. Remaining technologically and operationally an offensive weapon pure and simple, from the late 1960s to the early 1980s, the two powers' nuclear means achieved a general balance of military might, the sum total of which gave defence an obvious advantage over offence. Understandably, this trend manifested itself in the above-

mentioned quite novel forms of strategic balance, rather than in the traditional ones.

Towards the mid-1980s, some of the parameters displayed an increasingly manifest trend to the disruption of the stability of military strategic equilibrium. To be sure, the stock of nuclear means capable of surviving under any conditions of a surprise attack and of launching a retaliatory strike continues to grow, first of all, through the absolute expansion of nuclear arsenals, including their low-vulnerable components, in particular naval ones. And yet, there is a relative rise in the percentage rate of armaments designed for precision strikes against the other side's strategic means. The US MX, Trident II, Midgetman and B-IB systems and a variety of cruise missiles can, by the mid-1990s, lead to a 3- to 6-fold build-up of the US counterforce potential (first and foremost, intended to hit the other side's protected land-based installations) as compared with the early-1980s. Part of this potential with a high rate of survivability at the time of launching may grow by more than 4-fold, and the part that can quickly reach its targets (within 30 minutes or less) may grow 20-fold.¹

It is clear that with the present-day huge strategic arsenals, these programmes will neither make the USA capable of delivering a disarming first strike nor even provide it with a counterforce potential against Soviet deterrence means comparable with that of the mid-1960s. The Soviet countermeasures will certainly provide for the build-up of low-vulnerable and highly survivable elements of the Soviet strategic forces. However, the absolute and relative increase (in the overall military correlation of forces of the two powers) of the means intended for a counterforce strike or increasingly vulnerable to such a strike should be recognised as a destabilising trend in the relative strengthening of the function of nuclear attack at the expense of nuclear defence.

As for defence as it is traditionally understood, the

¹ *Problems of Nuclear Weapons Freeze*. Committee of Soviet Scientists for Peace and Against the Nuclear Threat. Published by the Institute of US and Canadian Studies, USSR Academy of Sciences, Moscow, 1984, pp. 25-27 (in Russian).

development of a 100 per cent reliable means to protect the population from nuclear weapons, in particular ballistic missiles, is an absolute impossibility, even theoretically. The development of a perfect nationwide ABM system is as improbable as that of perpetual motion.

In principle, ABM and air defence systems of limited effect for the protection of strategic offensive arms and other military installations are not impossible. However, for the time being, there is no need for such defensive systems to protect them from a hypothetical disarming strike, with fairly survivable offensive arms in existence.

A far larger, technologically sophisticated and extremely costly ABM system of less than a 100 per cent effectiveness (for example with a 40 to 60 per cent intercept effectiveness) with a purposeful or side potential to protect administrative and industrial centres would be absolutely useless as an instrument to repel a full-scale first nuclear strike against these targets. "Merely" 10 per cent of either side's present-day strategic forces amounts to about 1,000 nuclear warheads while 25 to 30 per cent of the population and up to 70 per cent of the industrial capacities in each of the two powers are concentrated in no more than 200 administrative and industrial centres. To fully destroy them, it would be enough for a certain number of warheads, equivalent to from 200 to 400 warheads of megaton power each, to penetrate the defences. But even a partially effective ABM system may give the country possessing this system the extremely dangerous illusion that it can beat back the other side's less powerful retaliatory strike after the other side has been weakened and disorganised by a sudden nuclear attack on its strategic forces and its control and communications system.

The dialectics of the missile and nuclear balance adds therefore a new dimension to both the offensive and defensive means, revolutionising their traditional role in the relationship between the offensive and defensive capabilities. Large-scale ABM systems threaten to upset drastically the strategic balance. Without such systems, the greater the stability of the correlation of offensive nuclear forces (with their overall parity), the less the probable

aggressor's capability for a first strike weakening the retaliatory strike capability both absolutely and relatively, or, in other words, the more reliable each power's deterrent capability for an adequate second strike. Stability calls for a symmetrical mutual conviction of both powers in the reliability of their deterrence capabilities, and at as low levels of lethal arsenals as possible. In the final analysis, these levels may be reduced to a minimum level of reasonable sufficiency in keeping with the present military, strategic and political situation.

The Path to Greater Stability of Strategic Equilibrium

The presence of a military strategic equilibrium and parity expressed both in the qualitative and quantitative characteristics of the nuclear forces of the opposing sides constitutes one of the principal factors determining strategic stability. With a large imbalance, for example in the quantity of strategic means, in favour of either side, there would be a reduced strategic stability. Even if such an advantage did not make it capable of reducing the power of an opponent's second strike, it would provoke the other side to take countermeasures, intensify the arms race and make it difficult to reach agreements to curb it.

At the same time, the preservation of an overall military strategic equilibrium and parity *per se* does not make for a sufficient strategic stability.

One of the principal measures for the preservation of the stability of military strategic balance lies in the need of both sides for a guaranteed capability for an adequate second strike. Therefore, strategic stability cannot be reduced to the approximate equality of the numerical parameters of the sides' capabilities. It is also necessary to consider other parameters of the powers' nuclear forces and their military doctrines and strategic and operational concepts. As was noted earlier, strategic stability cannot be abstracted from the overall international context, above all, the political relations between the USSR and the USA and the Warsaw Treaty Organisation and NATO. To a

certain extent, the stability of the military strategic balance during a period of detente is different from that existing in a long period of rising military tensions. Crisis situations also constitute a factor in respect to strategic stability.

Both from the politico-psychological and military standpoint, the most radical way to enhance the stability of military strategic equilibrium is the limitation and considerable reductions of nuclear weapons up to their complete elimination, and the prevention of the spread of the arms race to other spheres.

Yet, the nature of strategic stability is such that one can imagine, hypothetically, a situation in which the stability of military strategic equilibrium is disrupted not only because of the military build-up by one or both sides, but also as a result of a considerable reduction in their military build-up—for example, if ever more strategic means and control and communications centres of both sides or one of them become increasingly vulnerable. This factor compels one to pay particular attention to the potential structure of the opposing sides' capabilities that can develop as a result of agreements limiting and reducing nuclear armaments.¹

As we see it, the essential feature of the present-day strategic balance demonstrating that parity and stability do not fully coincide, consists in the following. The breakdown of, or even slight changes in, parity can be prevented by countermeasures without coordinating them with the other side, which acts as the initiator of the disruption of parity and seeks one-sided advantages. The Soviet Union has had to do this throughout its entire post-Second World War history in the nuclear arms race that was started and has been fomented by Western militaristic forces. But in contrast to efforts to restore and support military strategic parity, the unilateral strengthening of strategic stability is a far more difficult, at times nearly impossible, task. Hence the demand for reciprocity as an important feature of stability.

An example of this is the deployment of the US Pershing

¹ See: *Strategic Stability Under the Conditions of Radical Reductions of Nuclear Weapons*, p. 13 (in Russian).

II intermediate-range ballistic missiles and long-range cruise missiles in Western Europe. The Soviet Union and its Warsaw Treaty allies had to respond with a set of measures. These included the calling off of the moratorium on the deployment of Soviet medium-range nuclear weapons in the European part of the USSR and the deployment on the territories of Czechoslovakia and the GDR of enhanced-range tactical missiles and corresponding Soviet weapons in the ocean regions adjacent to the US coast. At a press conference in Moscow on December 5, 1983, it was pointed out that the Soviet missiles deployed in ocean regions and seas and targeted on the US territory are no less effective than the US weapons deployed in Europe, considering their range, accuracy, power and, particularly important, flight time.

As a result of the steps taken by the USSR and its allies in response to the deployment of new US intermediate-range missiles, parity was restored, but at a higher level. In the process, the stability of military strategic equilibrium declined, because the shortening of the flight time to vital centres of both sides critically lessened the time in which information could be thoroughly assessed and checked and a well-considered decision could be made after nuclear attack signals had come through.

This important additional element of instability in the equilibrium of military strategic might is removed by the Soviet-US Intermediate Nuclear Force Treaty.

However, there are other potential means with similar flight time, for example, sea-based cruise missiles which the Soviet Union proposes to ban.

To be sure, the sides are taking measures to improve the survivability and speed response of their control and communications systems. However, improvement of the effectiveness of offensive weapons makes this increasingly difficult. An improved stability of strategic equilibrium is mostly attainable through joint, coordinated and mutually acceptable measures on the basis of the general understanding of the nature of the present-day military strategic balance and the principles for ensuring its stability.

On the “Window of Vulnerability”

Many Western political and military leaders virtually reduce the problems of strategic stability to the vulnerability of the land-based component of the strategic nuclear forces to strikes by multiple independently targeted re-entry intercontinental ballistic missiles (MIRVed ICBM). An extremely accurate and fairly high yield weapon, it is claimed this missile can strike superhardened installations such as silos launchers. It is also noted that only land-based missiles can be used for a synchronised short flight time salvo against several hundred installations because of the advantages of the corresponding control and communications system and the peculiarities in the method of the deployment of land-based ICBMs.

Some US experts say there is the problem of the growing vulnerability of either side's ICBM and other stationary installations. At the same time some US leaders are quite vocal in claiming that this is allegedly a solely US problem since the Soviet strategic arsenal includes heavy multiple independently targeted re-entry ICBMs. This has supposedly resulted in the so-called window of vulnerability of the US strategic forces.

This issue features prominently in a concrete analysis of various aspects of stability of military strategic balance. It should be noted, however, that the factors and parameters of strategic stability cannot by any means be reduced to the vulnerability of MIRVed ICBM silos.

It would above all be wrong to claim that vulnerability is only a headache for the US strategic forces. The problem is that the ICBMs as a whole become vulnerable with the advent of MIRVs and the growing accuracy of warheads placed both on intercontinental ballistic missiles and submarine-launched ballistic missiles (SLBM). Significantly, plans for the construction of the US strategic forces for the period up to the year 2000 onwards give particular priority to the equipment of SLBMs with high-accuracy warheads. Nor is it amiss to again recall that the USA was the first to start developing MIRVs and equipping their strategic forces with MIRVs on a massive scale. This, in

fact, gave rise to the component's increased vulnerability confirming the predictions of the more far-sighted US and Soviet experts in the late 1960s. The Soviet Union responded to US programmes by developing similar means.

Nor can we subscribe to the claim that the growing vulnerability of the ICBM gives any advantages to the Soviet Union. The US Minuteman III ICBM equipped with the new MK 12A warheads is a fairly effective weapon that must already now be making part of the Soviet strategic forces as vulnerable as those of the USA. Either side's ICBMs constitute but one of the three components of the strategic forces (the strategic triad). In the USA, this component accounts for about 16 per cent of the total of strategic warheads. In the USSR, 60 per cent of warheads are carried by ICBMs. Correspondingly, in the early 1980s, the sides' capabilities for counterforce strike not only against ICBM silos but against all strategic forces were as follows: the USSR could destroy 22 per cent of the US strategic potential, while the USA, 42 per cent of the Soviet.¹ If we take into account that part of the submarines and planes at the bases may be hit in the first strike, either power would have a more or less equal proportion of the vulnerable forces: 35 to 40 per cent each. Thus, 60 to 65 per cent of their strategic forces can survive and launch a retaliatory strike that would be 10 to 15 times more powerful than the unacceptable damage level, as calculated by Robert McNamara in the 1960s.

The present-day strategic realities indicate that in case of an attack on the USSR or its allies, the Soviet strategic forces can inflict unacceptable damage on the United States. It is equally evident that the USSR has the physical potential to destroy part of the US strategic forces. But so does the USA, to put it mildly, considering the fact that land-based ICBMs account for different proportions of either power's strategic forces. Thus, both sides are threatened in an approximately equal measure. Many US experts regard the "window of vulnerability" in the US

¹ See: *Disarmament and Security*, 1986, Vol. 1, Novosti Press Agency Publishing House, Moscow, 1987, p. 39 (in Russian).

strategic forces in a similar light. Even those who prefer to disregard Soviet renunciation of the first use of nuclear weapons note it would be quite absurd to suggest that a surprise attack could be launched against US ICBM silos deploying some 20 per cent of US warheads. Even if there were a physical possibility to destroy the other side's entire ICBM arsenal in silos, the attacked country would be far from disarmed as it would still have ballistic missiles on submarines in the ocean that would be virtually invulnerable to the existing weapons, and heavy bombers that can take off immediately; the blow these two elements would deliver would be nothing less than crippling.

Equally untenable are the statements of the window theory advocates to the effect that the possibility itself of hitting this component of the US strategic forces may be used by the Soviet side to pressure the USA in a crisis situation in order to gain political concessions. For one thing, Soviet politics eschews adventurism of this sort. For another, the side coming under such pressure would certainly put its entire strategic forces, ICBMs including, on instant alert to avoid a sudden disarming strike.¹ The result of an attack on a country thus prepared would be the destruction of empty silos, their missiles already on the way to deliver a retaliatory strike.

Many experts claim that, technologically and tactically, a massive synchronised missile salvo on a thousand-odd targets intended to wipe out all the ICBM silos would be quite an undertaking, and with uncertain chances for success. A full-scale experiment of this sort is impossible, and its computer-aided simulation cannot lower the degree of uncertainty to a fairly convincing level. When launched, ballistic missiles will follow combat, not test trajectories. This increases the uncertainty of the combat use of ICBMs, SLBMs and other missile forces as far as their accuracy is concerned. In addition, the explosions of the first warheads

¹ Analysis of all cases of direct or indirect threat of the use of nuclear weapons in conflict situations reveals the USSR has resorted to this device far less frequently and in less dangerous situations than the USA. See: Richard K. Betts, *Nuclear Blackmail and Nuclear Balance*, The Brookings Institution, Washington, 1987.

will send ground particles into the air, which would inevitably prevent other warheads from reaching the targets. The Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water signed by the USSR, the USA and Great Britain,¹ makes it virtually impossible to estimate this effect experimentally or to search for effective ways to overcome it. This is just the case when a heightened uncertainty by either side as a result of the restricting treaty, adds to the stability of the military strategic balance, rather than undermines it; the agreements on the limitation of armaments are one of the instruments ensuring this stabilisation of uncertainty.

But even if we accept the hypothetical possibility of an effective strike disabling the ICBMs, this blow will have severe effects and will take millions of human lives. Scientists quite conclusively estimate it would result in 5 million to 34 million victims.²

Thus, such a strike can in no way be regarded as a selective nuclear missile duel exclusively between intercontinental ballistic missiles of the opposing sides, the way some US strategists view it. Politically, militarily and morally, such a strike would be nothing less than an act of global thermonuclear aggression with all the ensuing catastrophic consequences.

In discussing the possibility of the destruction of a large part of the sides' strategic arsenals, one should keep in mind the possible advent of high-precision, relatively low-yield warheads, manoeuvring at the final stage of the flight path that could hit strategic installations without considerable side effects. Obviously, the advent of such a weapon could give rise to additional illusions concerning the possibility of a limited nuclear war. This danger should be taken into account in making forecasts of the development of the military strategic balance and its level of

¹ See: A. G. Arbatov, A. A. Vasiliev, A. A. Kokoshin, "Nuclear Weapons and Strategic Stability (Article 1)", *SShA-ekonomika, politika, ideologiya* (The USA: Economy, Politics, Ideology), 1987, No. 9, p. 19.

² See: *Strategic Stability Under the Conditions of Radical Reductions of Nuclear Weapons*, p. 13 (in Russian).

stability. Another possibility that should be kept in mind is the development of other means capable of cushioning the retaliatory strike, for example, the use of advanced means of strategic anti-submarine warfare in addition to ABM systems.

The mid-1980s witnessed the qualitative restructuring of the strategic forces; its main element was that the naval component of these forces acquired the ability to hit hardened targets. In addition to means intended to strike "urgent"¹ hardened targets, the present US military programmes provide for the deployment of large numbers of the means for destroying highly survivable hardened installations. This task is assigned to the air component of the triad and sea-based and land-based long-range cruise missiles.

Taking measures to make its strategic forces invulnerable, in the mid-1980s the Soviet Union began the deployment of mobile launch ICBMs, staying, however, within the bounds of the SALT II Treaty.

As far as the potentially increasing vulnerability of the naval component of the strategic forces, i.e., of nuclear-powered ballistic missile submarines (SSBN), is concerned, Soviet proposals on the limitation of anti-submarine activities, for example, by creating zones banning anti-submarine activities, have been designed to increase the stability of military strategic balance with due consideration of this factor. A proposal for Soviet-US talks on this question was made in 1984 by the Committee of Soviet Scientists for Peace and Against the Nuclear Threat.²

Thus, in analysing the problem of the stability of military strategic equilibrium, it is necessary to take into account all aspects of the military technology policy. Some of these aspects are overlooked or deliberately veiled by the majority of US experts. By focussing their attention on comparing the capability of Soviet and US ICBMs to destroy hardened targets (an element in which a certain

¹ That is, the destruction of ICBMs should be very fast: they have to be destroyed before they start leaving their missile silo launchers.

² See: *Problems of Nuclear Weapons Freeze*. Committee of Soviet Scientists for Peace and Against the Nuclear Threat, p. 11 (in Russian).

asymmetry developed in favour of the Soviet Union in the 1970s), they, however, overlooked a plethora of other factors that are equally or even more important from the viewpoint of upsetting the stability of the balance. They include, first of all, the reduction of the flight time (Pershing II missiles have a flight time of 8 to 12 minutes as against the 25 to 30 minutes of the land-based ICBMs). This both complicates the use of detection and warning systems and minimises the time for the political leadership to adopt a decision on a second strike, i.e., disrupts strategic stability. They also include the possibility of launching a strike along unpredictable trajectories; this strike can first of all be launched by modern operational or to-be-developed ICBMs and long-range cruise missiles. Another factor is the decreased possibility of using radar and infrared detection as a result of the use of the Stealth technology in the development of bombers and cruise missiles. Finally, there remain difficulties in ensuring a reliable two-way communication between the SSBNs and command centres, which adds to the danger of the unsanctioned use of nuclear weapons.

In appraising the role of various weapons systems, one should not forget the difference in the sides' geostrategic positions and the history of the formation of the strategic forces' structure. Specifically, we cannot follow in the footsteps of many US experts who regard the ICBMs as nothing but a first-strike weapon (weapon of real conduct of war), and the SLBMs as the means of a retaliatory strike (deterrence). "Today various strategic offensive means have converging kill potentials. There is no difference in fighting effectiveness between the Soviet ICBMs and the US Trident SLBMs. Therefore, strategic armaments should be viewed and assessed in *toto*," Soviet Marshal S. F. Akhromeyev noted.

As a means of deterrence, ICBMs are not inferior to SLBMs, and in some respects are superior. Communication with the former is far more reliable, duplicated and two-way. A strike against ICBMs would be a blow against enemy territory, equivalent to the outbreak of a global nuclear war. In contrast to SSBNs at sea or bombers in the

air, ICBMs cannot be involved in a local armed conflict and do not create the heightened threat of the escalation of a local conflict into a global one and of a conventional conflict into a nuclear one. In the event that ICBMs do become vulnerable, there is the technological possibility of launching a retaliatory strike, i.e., when the other side's missiles and warheads are still in the air. The side that would plan a first disarming strike would never be able to rule out the possibility of its enemy's retaliatory strike. Such characteristics of the ICBMs and SLBMs should be considered in toto in discussing the conditions for ensuring the stability of military and strategic balance at progressively lower levels of nuclear confrontation with the attainment of corresponding agreements on the limitation of nuclear armaments.

Strategic Stability Measures

Many Western experts today bank on the development and improvement of missile attack early warning, control and communications systems, viewing them as probably the principal means to promote strategic stability. The absolutisation of the stabilising role of these systems and means, however, does not correspond to their actual role in the macrosystem of military strategic balance. It would seem obvious that the improvement of the control and communications systems and, in particular, of the missile attack early warning system can and must be regarded as one of the means to heighten the controllability and reliability of the nuclear forces in respect to preventing their unsanctioned and accidental use. At the same time, the other side would be quite warranted in regarding such measures as part of the potential enemy's preparation for a nuclear war, in which the control of the troops and the state would be vital to achieve victory. The build-up and improvement of offensive armaments does much to raise demands on the corresponding control and communications system and at the same time adds to the threat for the other side's analogous systems. Efforts to improve this system increase the effectiveness of the potentials of strate-

gic armaments, provide for the solution of increasingly complex tasks and raise the threat to the other side's combat power. All this very seriously affects the probability of war in a crisis situation.¹ Thus, the development of control and communications means is one of the problems requiring joint efforts to accurately determine the forms of activities in this field that can be regarded as conducive to raising strategic stability, and which lower it.

Special attention should be devoted to the nature and kinds of the other side's retaliatory measures aimed at restoring military strategic stability. Viewed in their totality, they fall into those designed expressly for the neutralisation of specific military-technical systems and those creating a similar threat to the side seeking superiority, which increases its vulnerability. Thus, a response to the development of short flight time vehicles could be systems making for greater mobility, duplication of warning, control and communications. The expansion of the counterforce capabilities of the US ICBMs and SLBMs invites such retaliatory measures as the deployment of part of land-based missiles on mobile launchers, the build-up and the heightened survivability of the missile-carrying submarine fleet (because the missiles acquire a longer range), the modernisation of the long-distance aircraft force equipping it with cruise missiles. All these measures are taken in order to reduce the US capability for a disarming strike and to promote the Soviet capability for an adequate retaliatory nuclear strike. The development of the Stealth technology may be largely neutralised by improving radar technology, including the expansion of the frequency band in use, the introduction of infrared systems and automation means, the linking-up of a number of radar stations and the introduction of information exchange in numerical form. Shielding infrared radiation is extremely complex since the development of screens has to take into account the decline of a plane's aerodynamic efficiency and the possible

¹ See: A. Arbatov, A. Saveliev, "Control and Communications System as a Factor of Strategic Stability", *Mirovaya ekonomika i mezhdunarodniye otnosheniya* (World Economy and International Relations), 1987, No. 12, p. 21.

expansion of its cross-section, which facilitates radar detection.¹

As for the Soviet countermeasures creating an analogous threat in response to US attempts to gain an advantage by expanding its counterforce capability, they will restore the military strategic balance, but at a higher and—more important—a less stable level. With the actions and counteractions, the stability of military strategic balance will be at a lower level.

The determination and implementation of countermeasures often calls for the combination of both above lines, particularly since many strategic systems can both reduce the other side's counterforce capability and escalate the corresponding threat to the enemy (for new weapons systems often combine an increased survivability with a heightened kill power). However, there is sometimes a need to choose between these two lines, because technologically and economically, some qualities of a weapons system are improved at the expense of others. A full set of countermeasures along both lines would immediately make the maintenance of balance a far more costly undertaking than efforts to upset it. In this connection, particular emphasis should be laid on the possible influence of the deployment of US comprehensive space-based ABM system and potential Soviet countermeasures on the stability of military strategic balance.

Let us examine the implications of both sides' deploying such systems—an option the US Administration's officials insist on. At every stage, in particular the initial one, either side would be able to create a partially effective system. Therefore, sticking to the worst scenario in their assessment of probable military conflicts, either side will view the enemy ABM system as a threat to a potential retaliatory strike. To stave off the threat, either side will develop its

¹ See: F. Dmitriyev, "US Research into the Stealth Programme", *Zarubezhnoye voyennoye obozreniye*, (Foreign Military Review), 1985, No. 11, p. 51; A. G. Arbatov, A. A. Vasiliev, A. A. Kokoshin, "Nuclear Weapons and Strategic Stability (Article 2)", *SShA—economika, politika, ideologiya* (The USA: Economy, Politics, Ideology), 1987, No. 10, pp. 22-23.

counter ABM-system capability and offensive forces. The strategic instability caused by space-based ABM systems will also be expressed in that the so-called defensive space-based weapons may be converted into strike weapons. These would first of all be used to knock out the other side's corresponding ABM system (with an insignificant fraction of its own fighting potential). Even if we abstract ourselves from today's international political reality and believe all proclamations of commitment to peace on the part of SDI proponents (and both sides take steps to deploy their parallel strategic defence systems), we see again a number of very weighty factors detrimental to the stability of military strategic balance.

As noted earlier, the vast destructive power of nuclear weapons more or less minimises the differences in the performance characteristics of individual components of the sides' strategic offensive forces and their structure. With space-based strike forces and ABM systems as a new member of the equation of military and strategic balance, the situation is bound to drastically change. To a far greater—and qualitatively different—extent, the effectiveness of ABM systems (particularly those space-based) depends both on their performance characteristics (the accuracy of target acquisition and detection system, the reliability of the computer complexes of the battle management sub-system, the power of space-based or land-based lasers, etc.) and on the geographical location of either side's strategic offensive forces. In addition, national technological means or even on-site inspections would be of little or no help in verifying many of the characteristics of the potential ABM weapons.¹

¹ See: R. Z. Sagdeyev, O. F. Prilutsky, *Strategic Defence and Strategic Stability*. Committee of Soviet Scientists for Peace and Against the Nuclear Threat. Published by the Institute of Space Research, USSR Academy of Sciences, Moscow, 1985 (in Russian); *Space-Based Weapons: Dilemma of Security*. Ed. by Ye. P. Velikhov, R. Z. Sagdeyev, A. A. Kokoshin, Moscow, 1986, pp. 140-41 (in Russian).

Strategic Stability Under Nuclear Disarmament

The radical cuts of nuclear armaments resulting from the Soviet Union's presentation on January 15, 1986, of a programme for nuclear disarmament and its proposals at the Soviet-US meeting in Reykjavik in October 1986 call for a detailed analysis of conditions for providing strategic stability at a considerably lower level of nuclear confrontation moving towards the complete elimination and prohibition of nuclear weapons. Fundamental research into this agenda was conducted by a working group of the Committee of Soviet Scientists for Peace and Against the Nuclear Threat in 1984-87.¹

The analysis of changes in military strategic balance, with a varied depth of the reductions of nuclear arms, was conducted by consecutively comparing various combinations of the structure and make-up of the sides' forces at the corresponding stages of nuclear disarmament. The analysis was based on computer models (dialog system AC, models AC-1, AC-2) that had been developed at the Laboratory of Structural Analysis and Modelling of the Institute of US and Canadian Studies, USSR Academy of Sciences.² These models do not by any means aspire to present a full and comprehensive picture of the investigated field. They were used, first and foremost, to bring out in sharp relief the changes of individual factors influencing stability. The use

¹ See: *Strategic Stability Under the Conditions of Radical Reductions of Nuclear Arms*. Committee of Soviet Scientists for Peace and Against the Nuclear Threat. Research headed by R. Z. Sagdeyev and A. A. Kokoshin, Moscow, 1987 (in Russian).

² As summarised, the list of the parameters of the main bloc of these models determined on the basis of statistic data or expert assessments included probability patterns of the effectiveness of the ABM and air defence systems; the percentage of destroyed enemy nuclear-powered ballistic missile submarines (SSBNs) as a result of anti-submarine warfare; the deployment area of mobile ICBMs in square kilometres or square miles; the number of air force and naval bases; coefficients of SSBNs and bombers staying on ready and advanced alert; the maximum admissible number of warheads guided at one target (this parameter may be introduced to take account of the effect of mutual destruction of warheads as a result of a surface nuclear explosion), etc. (*ibid.*, p. 38).

of the models helped clarify the structure of the investigated field and shed more light on the fluctuations of the so-called generalising stability vector, i.e., the dependence of this vector's evolution on the change of its major parameters. For the investigation of the various stages of the reduction of nuclear arms to be successful, the following basic conditions had to be met.

1. The political, military and strategic situation is such that the sides have no motivations for a policy of first-strike nuclear aggression. The retaliatory actions of the attacked side rule out the possibility of putting the results of the first (pre-emptive) strike to any sensible use.

2. None of the sides has a capability for a disarming first (pre-emptive) strike. In any case, the attacked side retains a capability for inflicting on the aggressor an unacceptable and comparable damage.

3. There are no conditions for the non-sanctioned and accidental use of nuclear weapons.

Presumably, one of the important factors of the stability of military strategic balance (in particular, at its higher levels) is the capability of the country whose strategic forces would have been attacked to restore the disrupted balance by a retaliatory strike on the aggressor's strategic forces.

Reliable multiple duplication control, communications and missile attack warning systems constitute a decisive factor, if either side is to meet the above three conditions. However, not every issue of the prevention of an accidental outbreak of nuclear war, and of the improvement of the reliability of early warning, control and communications systems can be solved on a unilateral basis. A drastically improved cooperation stability in a number of fields will call for combined efforts on the basis of a mutual security principle and for the criteria of strategic stability to be jointly developed. To this end, both sides may be compelled to build additional systems and means for mutual notification and control as part of their existing national control and communications systems and means.

As is clear from the calculations of various options of the reduction of the Soviet and the US strategic nuclear

arsenals by some 50 per cent, most of the options retain the basic parameters of the stability of military strategic balance of the latter half of the 1980s, i. e., the attacked side (in particular, if the attack does not come as a total surprise) will retain the capability for a successful retaliatory strike against a wide range of military targets and to inflict unacceptable damage on the aggressor's population and industry, i. e., commit an act of assured destruction.

It has been found that even if the aggressor has a "rarefied" nationwide ABM system (with an efficiency of 50 to 60 per cent as against a weakened retaliatory strike), this leads to a lower stability of military strategic balance if the other side does not undertake certain countermeasures.¹

A great increase in the effectiveness of anti-nuclear submarine warfare means and air-defence systems may have a similar effect.

But all things considered, an increase in the number of ICBMs and with more warheads per missile, is one of the simplest countermeasures to an ABM system for a side willing to preserve its capability for an adequate retaliatory strike.² This measure appears also reasonable in monetary terms, if we compare the cost of a multiphased ABM system with that of a MIRVed ICBM.

With deeper cuts in the nuclear arsenals, the nature of strategic military balance will be subject to changes.

For the sake of analysis, this research has examined two more levels of military strategic confrontation (hypothetical options) after the following phases in the reduction of nuclear arms: (1) another 50 per cent cut, i. e., by a total of

¹ One of the most vulnerable components in an ABM system with space-based strike weapons are battle management and communications means and the target acquisition and detection sub-system. The effectiveness of these means and, consequently, of the entire ABM system may be minimised or even ruined by the use of an array of radio warfare means and methods. Today radio warfare means are viewed as the optimum of the countermeasures in the format of an asymmetrical and cheaper response to the SDI.

² See: Y. P. Maximov, "Secure Shield", *New Times*, 1986, No. 51, p. 13.

75 per cent of the present level, and (2) another 5-fold reduction of what is left after the 75 per cent cut of the strategic nuclear arsenals, i. e., by 95 per cent of the arsenals of the late 1980s. Option 1 is in line with the second phase of nuclear disarmament proposed by Mikhail Gorbachev's statement of January 15, 1986, and option 2, with the third phase leading to a complete elimination of nuclear arms everywhere.

Reductions in Accordance with Option 1 (by 75 per cent)

Option 1 analysed ten combinations of the make-up and structure of the sides' strategic nuclear forces and diverse scenarios of an armed conflict, and option 2, eight combinations. However, these certainly do not exhaust the multitude of possible situations, in particular considering the possible destruction of control and communications means.

The analysis of option 1 reveals that a retaliatory strike may either knock out an array of military installations which is still quite wide, or inflict unacceptable damage on the industry and population on a scale close to that existing after a 50 per cent cut of strategic nuclear arsenals. With an equitable distribution of strikes against both military and non-military installations, the population still sustains huge damage, even if it is somewhat smaller than with a 50 per cent reduction or a strike on civilian targets exclusively in case of a 75 per cent reduction.

The use of the AC dialog system as an instrument of analysis made it possible not only to determine whether this state of military strategic balance is stable or not, but also to outline the limits of the stability field by surveying a great number of versions of the sides' confrontation with different structures of the strategic forces and the performance characteristics of weapons systems. As the results of modelling revealed, if strategic balance is to be maintained with a 75 per cent reduction, more strict limitations must be imposed on a large number of its parameters than in the case of a 50 per cent reduction. Stability becomes

increasingly vulnerable to a rise in the accuracy of strategic nuclear arms, and a hypothetical nationwide ABM system acquires an even greater importance. Irrespective of whether one side or both deploy such an ABM system, the situation becomes unstable even with a very low probability of intercepts (30 to 50 per cent). Asymmetrical countermeasures to a nationwide ABM system, in particular its space-based echelons, can play a certain stabilising role. However, this stabilising influence, just as at higher levels of confrontation, has its own limits.¹

The strategic military balance grows more sensitive to the capabilities of antisubmarine warfare. There is a fast-growing need for both sides to adopt measures to increase the survivability of SSBNs, for example, by creating zones free from the sides' antisubmarine operations.

It should be noted that with cuts in their strategic forces of 75 per cent of the level of the late 1980s, either side would have roughly the same number of strategic warheads as they had in the early 1970s. However, this would not mean simply a throwback to a similar situation prevailing during that period, since rapid changes are under way in the qualitative characteristics of strategic nuclear arms, above all in increasing accuracy. There is a rising capability of the sides' antisubmarine warfare means and methods, and thus, a rise in the vulnerability of submarines carrying strategic ballistic missiles. To be sure, there is a counter trend: the hardening of ICBM silos and control and communications centres; the expansion of the SSBN dispersion potential; and the rising reliability of mobile-launcher ICBMs. However, calculations reveal that they do not compensate for a rise in accuracy which is one of the critical factors as it has an effect, first of all, on the survivability of stationary ICBMs and poses a threat to a large part of the control and communications system of the sides' strategic forces. Significantly, accuracy is a charac-

¹ See: *Space-Based Weapons: Dilemma of Security*. Ed. by Ye. P. Velikhov, R. Z. Sagdeyev, A. A. Kokoshin, Moscow, 1986, pp. 128-57 (in Russian).

teristic which is exceedingly difficult, if not impossible, to verify or limit on the basis of mutual agreements. With 75 per cent cuts, the drastic reduction of the percentage of vehicles with a large number of warheads capable of hitting hardened targets becomes, therefore, an important condition of ensuring strategic stability.

Examining the options of 75 per cent reductions of the Soviet and US strategic nuclear forces, the authors proceeded *a priori* from the fact that such cuts would be impossible politically or militarily if the other nuclear powers failed to join in nuclear disarmament by that time. Calculations show that if the stability of strategic military balance is to be preserved, other countries have to reduce their nuclear arsenals roughly in proportion to the cuts in the US strategic forces and to make a number of parallel qualitative changes in their structure.

Under the conditions of such major cuts, it would be unjustifiable from the angle of strategic stability, to preserve the present levels of battlefield and tactical nuclear arms confrontation.

The totality of the problem of strategic stability calls for even greater measures to promote it at the level of general-purpose forces as well as conventional armaments.¹

It would also seem essential to place additional bans on the development of non-nuclear armaments on the basis of new and traditional physical principles that would have a kill power approaching that of nuclear or other mass-destruction weapons (in the spirit of the aforementioned proposals of the 1985 Conference of the Warsaw Treaty's

¹ As was noted in section 3, there are several kinds of links between nuclear and conventional destruction means. First, a growing number of vehicles can carry both nuclear and conventional warheads, and not only battlefield or tactical weapons but also, within the foreseeable period of time, strategic vehicles. Second, some kinds of conventional weapons and general-purpose forces can be used to knock out nuclear means, including, for example, control and communications systems of the strategic forces. Third, US and NATO strategy and operational plans provide for the first use of tactical nuclear weapons if the other side has a marked preponderance of force in a conflict that begins as a conventional battle. Fourth, some kinds of conventional weapons have a kill power approaching that of lower-power nuclear weapons.

Political Consultative Committee in Sofia),¹ and to attain agreements on the creation of conditions that would rule out the delivery of deep strikes by aircraft and advanced long-range precision conventional means.

Reductions in Accordance with Option 2 (by 95 per cent)

In examining this option of reductions, the idea was that as a result, the USSR and the USA will only have some several hundred warheads on strategic vehicles; their medium-range and tactical weapons will be eliminated; and the nuclear forces of the third countries would be reduced in proportion or eliminated altogether. The ABM Treaty remains in force, and there is a ban on the deployment of strike and anti-satellite space-based weapons of all types and kinds. An agreement banning any nuclear tests anywhere remains in force, and the production of weapons-grade fissionable materials has been discontinued.

As is clear from the analysis, at such a low level of strategic military balance the creation of more comparable strategic forces of the sides (with consideration of geographic and other factors, to be sure) becomes ever more pronounced. This helps the sides to appraise this balance with increasing certainty. The consecutive examination of a series of options of the forces' make-up and structure led the researchers to the conclusion that the best option in terms of mutual security would be for either side to retain about 600 light single-warhead ICBMs, including some on mobile launchers, i. e., to scrap all heavy bombers carrying free-falling bombs and cruise and ballistic missiles, SSBNs and SLCM and all other kinds and types of nuclear weapons and their vehicles.

If the consideration of all aspects of the stability of military strategic equilibrium is desirable, ICBMs have basically the same advantages over SSBNs as those we

¹ *Conference of the Political Consultative Committee of the Warsaw Treaty's Member Countries, Sofia, October 22-23, 1985*, Moscow, 1985, pp. 14, 15 (in Russian).

listed above when characterising them as a means of deterrence (reliability, relative predictability of trajectory, etc.).

Placing part of the land-based component of the strategic forces on mobile launchers in the process of nuclear weapons reduction will do much to increase their survivability in case one of the sides attempts a first disarming strike. The use of nothing but single-warhead missiles, with the resultant equalisation of one side's number of warheads and the other side's strategic targets, will minimise the factor of a rise in the accuracy of warheads. If this does not take place and MIRVs remain, and all ICBMs are deployed on stationary launchers, both sides will retain the hypothetical capability for a first strike to inflict such damage on the enemy's strategic forces as to minimise the possible damage from the retaliatory strike, if not fully disarm him. In this case, strategic stability would be seriously impaired.

With 500 to 600 warheads, one per a highly survivable vehicle, such a first strike aimed at limiting damage and disarming the other side, becomes an utter impossibility. A potential aggressor would have to act on the understanding that even if he makes such a strike against the enemy's strategic forces, he would not have the means for a follow-up blow on the other side's industrial projects and large cities. On the other hand, the side which is attacked would retain part of its force (which would be considerable, with corresponding mobility and dispersion of the ICBMs), for a retaliatory strike on the principal industrial targets and cities of the aggressor country, thereby rendering nil the destabilising counterforce capability (the capability for a disarming strike). Since light single-warhead ICBMs are small and always on the move, and because of the peculiarities of the orbits of corresponding observation satellites, it would be difficult to make an accurate fix of each missile at each moment. This uncertainty would be constructive as it would strengthen the other side's assurance that it can hardly come under a disarming first strike. Significantly, overall reliable verification of strategic forces of such a composition, particularly with the use of some additional procedures, is quite possible.

It should be noted that after both sides turn to employing single-warhead missiles and scrap other nuclear weapons, the larger part of the remaining ICBMs could be deployed in stationary silos (a far cheaper option than all the others), and another part, on mobile launchers to raise the safety margin in the event the enemy covertly deploys MIRVed ICBMs. Another factor in favour of deploying part of the ICBMs in silos is the potential threat to the strategic forces from third-generation nuclear weapons: nuclear explosions possessing a powerful electromagnetic pulse that could disable the mobile missiles' electronic systems by short-circuiting them. The potential of protection (screening) of ICBMs in silos is far higher than that of surface mobile-launch missiles. All things considered, the threat that can emerge as a result of the development of the third-generation nuclear weapons to the sides' strategic force control and communications systems and, therefore, to mutual strategic stability provides additional proof of the need for the universal, complete ban on nuclear tests. This would impede the development of such weapons.

From Reductions to Complete Elimination of Nuclear Weapons

The study examined several options of the follow-up halfway phases of reductions, between the 95 per cent cuts and the 100 per cent curtailment, reducing nuclear potentials to naught.

The condition of an assured destruction would no longer hold true at the lower levels of nuclear confrontation if the same demands for the invulnerability (survivability) of weapons systems and control systems are observed as those applicable to the 95 per cent reduction of strategic potentials.

In either case, the sides must not have any incentives and real operational or technological capacity to be the first to use nuclear weapons for a disarming or paralysing strike. The nuclear factor will weight less and less on the scale of military strategic balance. However, when nuclear arsenals are reduced to several dozens of warheads for each side, the

potential losses incurred as a result of the use of nuclear weapons may be comparable to those inflicted by large-scale conventional wars of the past. Specifically, population losses will be comparable to the results of massive strategic US and UK air strikes against Hamburg, Dresden and Magdeburg towards the end of the Second World War. At such low levels of nuclear confrontation, the sides may cease regarding nuclear weapons as a deterrence force. This can become a destabilising factor in military and political affairs.

Because of this and other factors for ensuring reliable guarantees for the prevention of war and the promotion of strategic stability, the scrapping of the remaining 600 strategic warheads should be accomplished without any intermediate phases. The last step in nuclear disarmament should be relatively brief and should constitute a single act.

One would believe that to achieve this, the sides will have at their disposal the necessary and adequate industrial, technological and procedural conditions. Actually the sides would establish considerable capacities for the elimination of warheads and vehicles in the process of arriving at and accomplishing agreements on the reduction of the strategic arsenals by 50 per cent and then by 75 and 95 per cent and eliminating medium-range, short-range and tactical nuclear weapons. Preliminary estimates of experts of the Committee of Soviet Scientists for Peace and Against Nuclear Threat indicate that the complete elimination of warheads would take about 6 to 8 months, and that of intercontinental vehicles, even less.

This verifiable operation will be possible through corresponding procedures that will have to be worked out and tested on a massive scale even at the stage of the 50 per cent reduction of strategic nuclear weapons and the elimination of medium-range nuclear missiles. It should be kept in mind, however, that the final stage will call for still stricter verification techniques (both with national technical means and on-site, including international inspections), to guarantee the destruction of every piece of nuclear weapons and make impossible the covert resumption of their production and deployment.

Another problem is the clarification of the non-proliferation regime for the corresponding treaty to be signed by all countries.

These are exceedingly complex tasks both politically and organisationally and they need to be carefully considered.

Further build-up and improvement of both sides' nuclear forces, even with the preservation of parity, creates an increasingly unstable strategic and military political situation and threatens to undermine the stability of strategic balance. Research indicates that there is an array of optimum versions of radical reductions of nuclear weapons up to their complete elimination, making it possible not only to preserve but also to improve stability. Certain factors come to light, the destabilising influence of which is so great that it upsets the stability of military strategic interaction at virtually any qualitative and quantitative parameters of nuclear weapons. Moreover, it rises while the levels of the strategic nuclear forces decline. This applies first of all to the one-sided or mutual deployment of the national ABM systems, in particular space-based ones. Radical reductions are impossible unless such destabilising factors are fully eliminated. Unless this is done, the problem of strengthening strategic stability cannot be solved. It should be noted that many prominent US political leaders and experts are fully alert to this aspect, and they are making active—and quite successful—efforts against SDI research and development to create this system.

Consecutive steps to implement the principle of defence sufficiency presuppose the complete elimination of nuclear weapons everywhere. However, several phases will have to be passed during which nuclear weapons will remain in the sides' arsenals. At some moment, the opposing sides would only have a minimum nuclear potential that would only be sufficient for a retaliatory strike with an unacceptable damage to the aggressor. The sides' nuclear forces ensuring the potential of minimum deterrence must be sufficiently invulnerable and controllable. Means and procedures for the verification of the corresponding agreements should improve while the principle of defence sufficiency as regards

nuclear and conventional weapons is implemented. These means and the regime of the corresponding agreements should furnish guarantees that any covert and unexpected violation of the agreements on the nuclear ceilings determining the minimum deterrence potential, would not result in the qualitative changes leading to the violating side's advantages.

5. Correlation of Defence and Offence

The combination of the terms "defence" and "offence" today occurs with increasing frequency in political vocabulary and strategic military research. This is only natural, since defence and offence constitute the principal kinds and methods of warfare. Thus, it is customary to speak of the defensive or offensive orientation of military doctrines and the offensive and defensive means of warfare. Historically, a country's military doctrine has been classified as offensive and defensive, depending on whether the country prepares for an offensive or a defensive war. On this basis, the tribunal of history has declared one of the belligerents the aggressor, and the other, the victim of aggression.

Connections Between Offence and Defence

Offence and defence have existed as modus operandi and methods of warfare since the very first war in history. The two are interconnected and interdependent. As experience shows, in time, one form of warfare would gain the ascendancy, depending primarily on the progress and results of the competition between the offensive and the defensive means of warfare.

Traditionally, offence and defence are viewed as antitheses.¹

Offence has always been associated with the advances of troops into hostile dispositions to defeat the enemy and capture important terrain (lines, installations). Advance is also included among the means of warfare that are used for launching a strike, the culmination and indispensable element of offence.

¹ To be precise, the antithesis of offence is retreat, not defence. Offence is but an "in-between" phase. But defence serves to stop the attacker's progress, provide protection from attack and repel it. This explains why military political vocabulary insists on the combination of the terms "offence" and "defence", using the term "retreat" very infrequently.

Defence includes actions to disrupt hostile advance by holding key positions and areas, repelling strikes and defeating the enemy by counteractions (counterattacks). The former mission is accomplished by building various kinds of fortifications and obstacles. These means are regarded as passively defensive. They are intended to disrupt a hostile advance (counterstrike), cover the troops and materiel, increase prospects of their survivability in the course of the hostilities and set the stage for counteractions. The mission of repelling a hostile attack and the defeat of the enemy is accomplished through active actions of troops and combat power.

There is an interconnection and ceaseless competition between defensive and offensive means that may be represented as the sword and the shield. The result of the competition is the development of the means themselves and of the methods of defence and offence. This is a dialectical law of development. The discovery of these laws is of great interest for the assessment of present-day military doctrines—indeed, of the general approaches to curbing military preparations.

Frederick Engels examined closely the competition between the defensive and the offensive means and methods as one of the sources of the development of the military field, in particular that of the art of warfare. He dealt with the question in the greatest detail in his violence theory. His astute predictions concerning the scope and results of the First World War are based largely on his analysis of the dialectics of the evolution of defensive and offensive means and methods.

To demonstrate the process of the interconnection and interdependence of offence and defence, here are the examples of two historical periods. The earlier period began some 200 to 220 years ago and was connected with the evolution of capitalism and the formation of machinery production. The later began with the advent of nuclear weapons in 1945 and has continued up to the present.

Offence and Defence in the 19th-First Half of the 20th Centuries

This period falls into several phases during which defence dominated offence or vice versa. The development of military technology exerted increasing influence on these changes. The development of new weapons and military technology led to corresponding transformations in the methods of warfare. But these developments did not by any means take place concurrently with the advent of new means of warfare: they happened some time later when the advanced weapons began to be employed on a massive scale. This could not but lead to a new qualitative state of the phenomenon. For example, medium machine guns were used in the Boer War of 1899-1902. However, few in number and with poor performance characteristics, all they did was introduce some changes to battle formations rather than revolutionise the methods of warfare. Machine guns played a more prominent role in the Russo-Japanese War of 1904-06. Later, the rapid development and wide use of automatic weapons had an incomparably greater effect that became particularly conspicuous during the First World War.¹

In turn, the changing correlation of the potentials of offence and defence had a considerable impact on a country's policies and the assessments and conclusions of state and political leaders and of the military command, concerning the nature and scope of the use of military force to attain political ends. Properly speaking, the scope and nature of a country's political aims largely depended on its offensive or defensive capabilities in a particular military-political situation. More or less, this set the stage for political decision-making, with a country deciding whether

¹ Mounted machine guns sharply increased the capabilities of defence, which became quite obvious towards the middle of the First World War. The massive use of light machine guns on the Western Front at the end of the First World War added noticeably to the capabilities of the attacking side. The further development of light automatic weapons (pistols, machine guns, submachine guns) made this trend even more pronounced by the beginning of the Second World War.

it should wage an offensive or a defensive war and what kind of a military doctrine it should adopt.

To be sure, history teaches us that quite often subjective assessments were a far cry from reality. This could not but have its effect on whether or to what extent the corresponding political objectives were attained. For example, both sides just prior to the First World War banked on large-scale offensive operations, and decisive ones for the best part. "The entire military world plunged into an hysteria of offensiveness before 1914," noted military theoretician Alexander Svechin quite aptly.¹ In reality, the overall potential of defence in the First World War was far greater than that of offence.

If we take a look at the 19th century, we see that the war between France and Prussia (1870-71) was primarily an example of the offence getting the upper hand over defence, and the Crimean War (1853-56), that of defence dominating offence (it was probably history's first positional war). Conversely, the Napoleonic wars were in the main the triumph of an offensive and active strategy. They pursued decisive objectives: the defeat of the enemy's armed forces, large territorial acquisitions, and changing the political structures of the hostile countries.

At present, an analysis of the capabilities of offence and defence more often than not draws on the comparison of the First World War and the Second World War as the largest and most illustrative conflicts of two powerful military and political coalitions possessing highly developed productive forces. Indeed, these wars employed all means of warfare of the day and called for the utmost exertion of effort.

During the First World War, defence was stronger than offence for many reasons. The use of machine guns and magazine rifles by the side on the defensive made the attacker abandon close combat formations. Coupled with the concurrent improvement of fortifications, the new fire weapons raised the potential of defence. The new defensive

¹ A. A. Svechin, *Evolution of the Art of War*, Vol. II, Moscow, 1928, p. 577 (in Russian).

elements included: a wide use of field fortifications and man-made obstacles; the establishment of a continuous, dozens of kilometres-long, defensive front; echelon-scale defensive positions in depth by organising several positions including 2 to 4 lines of defence comprised of fighting trenches, redoubts, communication trenches and man-made obstacles. Frequently, fighting trenches extended along continuous lines and were connected by communication trenches. Beginning with 1915, major offensive operations would bog down both on the Western and the Eastern fronts in Europe. The combatants began to wage defensive positional war. The fronts were ossified.

During the interwar period a number of countries made an active search for ways to break the stalemate of WWI. For a time, between the late 1920s and the early 1930s, the potential of defence and offence was a moot question.

In subsequent years, both Soviet and foreign military theoreticians discovered ways to overcome defences. Specifically, Soviet theoreticians analysed the experiences of the First World War and the Civil War in Russia to come up with the theory of a deep operation. According to the theory, in order to launch a successful attack, the attacker should simultaneously neutralise the defences in all depth, pierce their tactical zone in the chosen direction with the exploitation of tactical success by committing follow-up echelons (tanks, mechanised infantry, cavalry) and air landings to accomplish the mission as fast as possible.

Defensive as was the overall nature of the Soviet military doctrine before the Second World War (a fact we noted above), it clearly underestimated the necessity and capabilities of strategic defence. Defence was considered inadmissible as a kind of warfare at levels higher than operational and tactical. Significantly, a report by General Tyulenev concerning the nature of a defensive operation delivered at a conference of high-ranking officers of the Red Army in December 1940, dealt with army defence and neglected the peculiarities of strategic defence.¹

¹ See: G. K. Zhukov, *Reminiscences and Reflections*, Vol. 1, Progress Publishers, Moscow, 1985, p. 248.

Viewing offence as the principal kind of warfare, Soviet military theoreticians believed that the initial phase of the future war would witness a large number of meeting engagements. Moreover, the desire of the belligerents to seize the initiative at the earliest stage of the war would compel them to try to accomplish the mission by offensive operations leading to meeting engagements. This was laid down in Soviet military doctrine.

That strategic defence had been underestimated became clear during the very first days of the war. As a rule, strategic defence at the beginning of the war was organised in the course of vigorous offensive actions by the enemy under the conditions of an uncompleted strategic deployment and with no pre-organised defensive lines.¹ In the summer of 1942 the failure of defensive operations to repel the enemy advance upon Voronezh and Donbas made it possible for the enemy to rupture Soviet defences on the southern part of the Soviet-German front and to exploit this success for advancing on Stalingrad and the Caucasus. Just as in 1941, the Soviet Armed Forces had to resort to strategic defence, however, this time the mistakes and miscalculations in its organisation again led to severe defeats of the Red Army with enormous loss of life and territory.

It should not be overlooked that until quite recently the post-war body of Soviet literature on the art of warfare concentrated on the strategic offensive operations of the latter half of the war (1943-45). Often, the authors did not

¹ "The forward edge of a position nearly coincided with the state boundary with all its zigzags, literally following the slogan: 'We'll not give an inch of our land.' This extended the Soviet defensive lines considerably and posed the threat of enemy envelopment of our troops in the westernmost salients formed by our frontier. There was the particularly grave threat of the deep envelopment of fairly large groupings of Soviet troops to the west of Belostok and Lvov." The enemy took full advantage of these miscalculations. Even such important natural obstacles as the middle reaches of the Niemen River, the Augustowski Canal and the Bobr River, all several tens of kilometres from the frontier, were not used to strengthen the defences either as obstacles in front of the forward edge or for the organisation of rear positions (see *Voyenno-istorichesky zhurnal* [Journal of Military History], 1965, No 10, p. 28).

even mention that such operations were impossible until the strategic initiative was wrested from the extremely dangerous enemy at the cost of huge losses, including those resulting from major blunders in military doctrine and strategy. There is no doubt that had strategic defence received due attention before the Second World War, the price we had to pay for victory would have been far less.

These very grave mistakes in the pre-war doctrine of the Red Army are rooted in the campaigns of the early 1930s. Though presented as criticism, they actually constituted purges against military-political thought mainly associated with Professor Alexander Svechin and his school. Svechin's works were less than perfect; however, drawing on the comprehensive analysis of the correlation between offensive and defensive means, defence and offence, deep-seated historical tendencies, the history of wars, including the First World War and its results, he came to very important conclusions concerning the manner in which the Second World War could begin, the nature of the threat to the western parts of the USSR, etc.¹

Nor did the Allies make use of the potential of strategic defence on the Western Front in May 1940. The armed forces of Great Britain, France, the Netherlands and Belgium suffered devastating defeat, largely because of a tragic mistake in the strategic deployment of the Allied armies in conformity with their strategic doctrines, Professor Daniil Proektor demonstrates in his fundamental research.²

¹ Specifically, Svechin wrote nearly fifteen years prior to the outbreak of the Second World War: "For centuries since the times of Richelieu French foreign political thinking developed on the basis of the need to create conditions of divisiveness, parcelling and non-defendability in Europe. As a result of French political thinking with its ideas reflected in the Versailles Treaty, entire central Europe (Germany, Poland, Czechoslovakia, etc.) found itself under conditions ruling out defence and positional war. Poland will still have time to thank France for the gift of the Polish Corridor that provides for Poland to be the first to come under German attack." (A. A. Svechin, *Strategy*, Moscow, 1927, p. 184, in Russian.)

² The Germans formed their forces in a deep ram. However, the Allies did not counter this formation with strategic defences of necessary depth. The grouping of Hitler's armed forces could constantly sustain their strike

While offence and defence took turns in gaining ascendancy in the major wars on the European continent, including the Second World War, there was a steady rise in the kill power of weapons and in the intensity of warfare, and depth of the operations. Moreover, hostilities tended to spread to ever larger areas. There was also an increase in the consumption of resources for warfare, the level of their mobilisation, and in the strain country's military establishment and economy came under during war.

Correlation of Offence and Defence in the Nuclear Age

Nuclear weapons revolutionised the military. Their advent immediately gave offence a great advantage over defence even when the sides had very few nuclear warheads. With the increase in the number of vehicles and warheads, protection from nuclear weapons became increasingly problematic, despite occasional hopes for the development of an ABM system.

In time, the views on nuclear weapons changed. When there were few weapons in the 1950s and 1960s, they were regarded as a means of enhancing the fire power of troops. Attempts were made at the time to adjust nuclear weapons to the traditional forms and methods of warfare developed during the Second World War above all for strategic tasks. In the 1970s and 1980s, the rapid build-up of nuclear arms of various power, the development of a variety of long-range precision vehicles and their massive introduction in the armed forces, revolutionised the role of this weapon, former views as to its place and importance in war, the methods of warfare, and on war as a whole. Characteristically, its deterrence potential has been stressed in the West and the East.

with reserves that accounted for 31 per cent of the troops. On the other hand, the Allied forces reserves made up only 15 per cent of the troops. They were deployed at an insignificant depth and dispersed along a broad front. Thus, the Allies could not parry the blow or create a new stable defensive front in the event of a breakthrough. (See: D. Proektor, *Aggression and Catastrophe*, Moscow, 1979, p. 127, in Russian.)

In spite of the revolution it has wrought in the military establishment, the advent of nuclear weapons has not led to renunciation of the need for general-purpose forces and conventional armaments. Moreover, many experts have been insisting on the need for large, appropriately deployed general-purpose forces equipped with conventional weapons, and in quantities greater than they had before the advent of nuclear weapons. They have cited the following considerations: the use of mass destruction weapons will surely disrupt communication and reservist mobilisation systems. Thus, regular peacetime general-purpose forces are a necessity. This point of view has won official recognition in the West and constitutes one of the causes of the high level of military confrontation in Europe and of the conventional arms race.

Debates in the USA in the late 1960s-early 1970s concerning various ABM defence options, are quite indicative of the correlation of offensive and defensive means at the strategic level. Initially, the dispute centred around the question of the establishment of a leakproof strategic ABM system. Then it focused on a "rarefied" strategic ABM system, and finally, a preferential ABM system and a system capable of protecting part of the US centres from weakened strikes after accidental non-sanctioned launches. When the main body of the US ABM research and development was completed and the question was raised of the need for vast allocations for the deployment of the system, vigorous debates resulted in the decision to abandon nearly all of the ABM plans.

Significantly, the strategists' disputes focused not only on the Safeguard ABM system but also on the new offensive weapons: multiple independently targeted re-entry vehicles (MIRVs); the development of the new generation of intercontinental ballistic missiles; and plans to develop a new type of piloted strategic bomber. In fact, the new offensive and defensive systems were discussed together, with stress on their interconnection.

The debates in the USA mainly centred around the question: should the Safeguard be adopted or rejected. The implication was that by adopting it, the USA took the

initiative in starting a new round of strategic arms race, while rejection meant that the USA agreed to the ABM Treaty.

At the time, the opposition was concerned over the possibility of a dangerous turn in the arms race, leading to a new round in the rivalry between offensive and defensive means. "Yet the central significance of this debate is less in the competing arguments than in an underlying agreement which pervades the hundreds of pages of the *Congressional Record*—an agreement that the arms race is taking a new and highly unsatisfactory turn... Certainly the Senators who voted against ABM did not think so. To them it was not the Soviet menace which was now most severe; it was the arms race itself," wrote McGeorge Bundy, Special Assistant to the President for National Security Affairs.¹

The strategic debates of the 1960s were particularly acute because they coincided with the preparation and beginning of the Soviet-US talks on curbing the strategic arms race. For that matter, the way we see it, the situation was not unlike that of today.

The opponents of the development of the Safeguard system based their arguments on the situation that prevailed in the world at the beginning of the 1970s:

—rather than promise any advantages to the USA, the new phase of the arms race will aggravate the danger of war, detract from the effectiveness of monitoring and verification of armaments and increase the danger of war resulting from an accident or miscalculation;

—no stock of weapons can "buy" security [nor can it be bought today—Auth.], and security cannot be equated with the quantity of armaments. To ensure its security, the country needs political decisions promoting peace and international cooperation, providing for the curbing of the strategic arms race;

—a US strategic superiority could not be put to any use or translated into political influence even if it were attainable (though it is clearly not);

¹ M. Bundy, "To Cap the Volcano", *Foreign Affairs*, October 1969.

- technologically, new ABM systems cannot be cost-efficient;
- expenditures on the development of the new systems will deal the US economy a body blow and lead to the diversion of resources required for the solution of internal problems. Moreover, hopes to bleed white the Soviet economy are illusory.

These debates and the corresponding assessments in military technology and strategy led to the signing, in 1972, of an Anti-Ballistic Missile Treaty of an unlimited duration.

SDI's Provocative Role

At the end of the 1970s and in the beginning of the 1980s, the idea of a strategic ABM system based on advanced technology, including weapons based on new physical principles and with a space-based echelon, acquired a new lease of life. Moreover, as is known, it became one of the priority programmes of research and development of the Department of Defense (and the military sector of the Energy Department). A number of lines have already come to light that reveal the potential role of this programmatic complex (SDI) at the level of military strategic equilibrium.

Let us first of all examine the political significance of the programme. In reality, it is designed to undermine the ABM Treaty that became by the mid-1980s one of the cornerstones of strategic stability. From the viewpoint of military strategy and technology, the ABM system to be developed by the SDI research and development programme could constitute a three-prong weapon ensuring: ABM protection from a weakened second strike; the creation of a potential for space-to-earth strikes; and the development of a wide array of information means improving the kill power, flexibility and mobility of nuclear offensive and conventional armaments and general-purpose forces.¹

But what makes the SDI's role a provocative one?

¹ For more details, see: *Space Weapons: A Dilemma of Security*. Edited by Ye. Velikhov, R. Sagdeev, A. Kokoshin, Moscow, 1986 (in Russian).

History demonstrates that there has always been a rule determining the correlation of defensive and offensive means: this correlation (both quantitative and, in particular, qualitative) always gravitates towards an equilibrium—action leads to counteraction. The history of the development of intercontinental ballistic missiles reveals that they existed for a long time without meeting their match. Since an efficient ABM system presented technological difficulties and was costly, these missiles enjoyed the unique status of an absolute weapon. Finally, things reached the stage, at which even a surprise attack could not guarantee success since it was difficult to limit the damage from the enemy's counter strike to levels making the risk of a sudden strike worthwhile.

At the same time, there were and are quite a few ideologists and political leaders in the USA who believed and believe that it must always be capable of delivering a first strike on the USSR and winning, though in recent years increasing efforts have been made to conceal these views.

However, to ensure this capability, there has been a constant search for means of guaranteeing US invulnerability or damage at an "acceptable level". These developments sustain the desire to develop an ABM system, and fundamental research and laboratory work are being conducted in this field.

The US government makes it a point to emphasise that the SDI is a stabilising factor at the non-nuclear level. Yet for any justification of this claim, it is necessary to demonstrate that the development of an efficient ABM system can reduce the rivalry between the offensive and defensive means to the "action-counteraction" formula. But the heart of the problem is that the idea itself of the development of an ABM system leads to the search for means to counteract it.

Thus, though as yet unable to meet the expectations pinned on it, i.e., to guarantee protection from the enemy's nuclear missile strike, the ABM system already has become a catalyst for a new round of interconnections, thus making it imperative to cut short this process of interconnections at some critical stage. The ABM system strikes at the very

heart of deterrence. It leaves the other side no alternative to building up its own offensive forces to a level restoring the balance. Thus, the development of a leakproof ABM would lead to a new cycle of the arms race and rivalry between offensive and defensive weapons systems.

Thus, rather than solve the problems of US security, the SDI helps destabilise the situation and leads to uncontrollable competition between offensive and defensive weapons systems and the growing sophistication of the entire body of armaments that is becoming increasingly difficult to control.

Conventional Offensive and Defensive Armaments

Following the Second World War, there has been a vigorous development of conventional means of defence: anti-tank artillery, anti-tank mines, a variety of missile and surface-to-air missile complexes, AT guided missiles, fighter aircraft, anti-submarine warfare ships, etc. The increased capabilities of such weapons have more than once been demonstrated in the local wars of the 1970s and 1980s. Currently a variety of anti-tank, anti-aircraft and many anti-ship weapons are developing apace, including those based on aircraft.

Many Soviet and foreign experts have become increasingly interested in these characteristic trends since the 1970s. For example, they study the experiences of the 1973 Arab-Israeli War in the Middle East during which the belligerents lost at least 50 per cent of their tanks and airplanes within a few days of the conflict. During that war anti-tank warfare constituted the main element of the hostilities on the land. It gave prominence to special anti-tank weapons, first of all, AT guided missiles, that were used both by the army and attack helicopters.

According to many experts, a sharp rise in the capabilities of the infantry and the continuous development of mobile AT guided missiles are robbing the tank-plus-fighter bomber combination that dominated most battlefields since 1940, of its function as the decisive tactical factor.

Today, to tanks and fighter bombers should be added helicopters carrying AT guided missiles and anti-AT missile weapons.¹ According to former adviser to the West German Defence Department, Andreas von Bülow, modern technology offers an ordinary infantryman relatively cheap battlefield weapons that can in a matter of seconds down a very expensive aircraft or knock out a heavy armoured vehicle worth millions of Deutsche marks.²

We believe that the new relationship between the capabilities of defensive and offensive weapons should be taken into account in toto in working out the practical approaches to the limitation and reduction of armed forces and conventional armaments.

As was noted earlier, conventional weapons that have an effect comparable with that of mass annihilation weapons are coming into being. Besides, a sharp rise in the range of conventional weapons makes it possible to wage war over large areas of the warring countries, not only in the border regions. It is also possible to wage a qualitatively new and far more destructive conventional war.

All this very adversely affects the possibility of achieving a strategic stability without broad measures to limit and reduce armed forces and conventional armaments. The problem of national security cannot be solved today through progress in military technology, much less in the foreseeable future. People can either encourage these interconnections or sever them.

Approaches to the limitation and reduction of armed forces and armaments must be developed with an eye on the future; consideration should be given to the actual process in the development of new destructive means.

Strategic stability at the level of conventional armed forces and armaments radically differs in a number of respects from that appropriate to nuclear weapons.

¹ See: *Local Wars. History and Our Day*. Ed. by I. E. Shavrov, Moscow, 1981, pp. 161, 163 (in Russian).

² This view is shared by a number of experts on military and political problems, including F. von Hippel (USA), A. von Müller (West Germany), A. Boserup (Denmark), R. Nield (Great Britain), S. Lodgaard (Norway) et al.

If strategic stability is to be ensured, the central task now is the creation of a set of conditions under which the defence capabilities of one side (strategic, operational and tactical) would be greater than the offensive potential of the other side, and vice versa.

Both tactically and strategically, defence has quite tangible advantages over offence, the prominent Russian theoretician Nikolai Mikhnevich stated in his fundamental work *Strategy* published in 1911: "Defence has strategic advantages as well since the defender is close to his resources. As he retreats, his forces concentrate more and more in contrast to those of the attacker... The defender in his country suffers fewer privations than the attacker, and an army defending its home is far more eager to fight."¹ These considerations led Clausewitz to conclude that "the defensive form of War is in itself stronger than the offensive".² Commenting on Clausewitz' conclusion, Svechin wrote: "The defender can make tactically better use of the terrain, wider use of fortification works, and develop fire to better effect. In strategy, the defender can make use of the defensive lines and the theatre's depth, which makes the attacker spend its forces on consolidating ground and time to negotiate it; moreover, any gain in time is a new plus for the defence."³

In claiming that defence was the stronger form of warfare, Clausewitz came to what we believe was an extremely important conclusion in respect to joint approaches to achieving strategic stability and creating conditions for the prevention of war at the level of general-purpose forces and conventional armaments: "An absolute defence completely contradicts the idea of War, because there would then be War carried on by one side only."⁴ It

¹ N. Mikhnevich, *Strategy*, St. Petersburg, 1911, pp. 146-47 (in Russian).

² *The Living Thoughts of Clausewitz*, presented by Col. Joseph I. Greene. David McKay Company, Phila, 1943, p. 120.

³ A. A. Svechin, *Evolution of the Art of War*, Moscow, 1928, p. 227 (in Russian).

⁴ *The Living Thoughts of Clausewitz*, presented by Col. Joseph I. Greene, p. 119.

follows from this statement that with both sides switching to purely defensive groupings and concepts, and strategic and operational defence forms, a more or less large-scale war becomes impossible. It is essential to again emphasise that this applies only to general-purpose forces and conventional armaments, not to the strategic nuclear field.

It follows from the foregoing that defence and offence are but modes of action of military elements that are determined by the powers-that-be, not some spiritualised categories. It is within human power to give free rein to the anarchy of armed struggle or cut short this sinister competition between strikes and counterstrikes, attacks and counterattacks. We base this conclusion on the strength of historical experiences in the struggle between offensive and defensive means and methods of warfare.

Thus, the scrapping of the present-day offensive potentials of both the Warsaw Treaty and NATO, is essential if strategic stability and security are to be strengthened in Europe. The way we see it, this should first of all apply to the qualitative aspect of the balance of forces, both to the methods and the concepts of the use of troops. We believe that the first step should be to persuade the doctrine-makers that defence should be uppermost in their minds. They should discard their commitment to offensive operations and the potential necessary for their conduct and translate this renunciation into action.

The realisation that today it is difficult to find a goal that would justify the conduct of purely offensive operations can constitute an important incentive in this respect.

To be sure, some professional military men still firmly believe that victory is unattainable in a defensive war. We could ask, however: can one seriously speak of an advance through a devastated lethal zone and what would be the objective of such an advance? And can one, speak of a victory leading to the self-destruction of the winner?

Presumably, in order to stabilise the situation, political and military solutions with "opposite tasks" are necessary.

In brief, the scrapping of the offensive potentials of the Warsaw Treaty and NATO in Europe could envisage the following moves in the years to come:

1. The reduction (disbandment) of the number of tanks and strike weapons and armoured and motorised units in the armed forces of the opposite sides' groupings to a minimum level necessary for the fulfilment of purely defensive functions (passive and active). Another measure may be the retailoring of mobile offensive divisions into purely defensive ones.

2. The reduction (disbandment) of the number of airplanes and the units of strike aviation.

3. The withdrawal of air assault units and bridging equipment from Western and Eastern Europe.

4. Restrictions on the power and quantity of the means of radio warfare to strip them of offensive capability.

These steps should go hand in hand with the phasing-out of nuclear arms and tactical missile complexes.

Proposed at the UN on December 7, 1988, the USSR's unilateral initiative lists many of these measures aimed at scrapping Warsaw Treaty's offensive capabilities.

It outlines nothing less than practical steps towards the scrapping of the offensive capabilities of the Soviet and Warsaw Treaty armed forces.

Some Western experts are engaged in discussing similar measures by the NATO countries. For example, freezing some items of the US military budget, the reduction in recruiting of US armed forces and a number of other steps place certain restrictions on US troops in Europe and the US forces committed to the European theatre.

In the long run, the problem of the reduction of the sides' offensive capabilities has to be thoroughly examined on a bilateral basis. Specifically, this includes the reduction and limitation of the forces and means that can be used for the sudden and speedy destruction of battle control and communication bodies and the principal transport centres.

Presumably, the fire power of the army, above all large-calibre artillery, mortars, and artillery rocket systems, should be reduced drastically to prevent sudden, powerful blows which would change the balance of combat power in favour of the attacker.

There is also the need to limit the participation of fleets in offensive army operations and to renounce strikes by

sea-based means against objectives that came under attack by tactical aviation and land-based missile weapons.

High hopes for the success of the creation of a stable collective security system in Europe, including the scrapping of the sides' offensive potential, are pinned on the talks on the military field mandated in the negotiations in Vienna.

If this goal is to be attained, it is necessary to examine the qualitative balance of the sides' combat power and the comparison of their offensive and defensive potentials. To be sure, this is far more complex than the determination of quantitative correlations in various weapons systems.

Published in late January 1989, the Statement of the Warsaw Treaty Committee of Defence Ministers concerning the numerical balance of the two blocs' armed forces and armaments mostly addresses the quantitative aspect of the balance of forces between the Warsaw Treaty and NATO.

As for the qualitative aspect (an essential part of the problem of the scrapping of offensive potentials), we can state that the imbalances and asymmetries in various weapons systems came into existence historically as a result of the excessive development by both sides of certain weapons systems. This should be avoided in the future.

Many asymmetries arose from both sides' geostrategic situation, technological potential, the interests of the Western munitions industry and other factors. However, at the heart of these asymmetries have been the political positions and the interests of their own and allies' security. This further reveals that if the sides see the situation in the correct light and display goodwill, the rivalry in the build-up of offensive weapons and modes of action can and must be stopped. The build-up of only the offensive capabilities does not solve the problem of national security in the long run. On the contrary, under the conditions of parity, security cannot be attained and maintained unless the offensive potential is scrapped and the balance is tipped in favour of defence.

6. Four Models of Confrontation in the Context of Ensuring Strategic Stability

Obviously, new political thinking must go farther than a review of a number of antiquated provisions in the foreign policies of the leading nations of the world. It envisages a new look at some traditional, entrenched approaches to the solution of purely military tasks.

Thus, one of the central tasks today is that the political commitment to prevent war and promote strategic stability should be reflected in the military technology section of military doctrines: in the strategic and operational concepts, construction and deployment of armed forces, plans for the mobilisation of the industry, etc.; and in transforming military technology section of the doctrines in the process of limiting armaments and disarming.

This section will deal with four basic options (models) of the confrontation of the sides at the level of general-purpose forces and conventional armaments. These options have been described conventionally as: offensive defence, counteroffensive strategic defence, counteroffensive operational defence and non-offensive defence.

Many parameters in the nature of confrontation and the criteria and conditions for ensuring strategic stability in this field are quite different from what exists at the level of strategic nuclear forces. However, there is need to always keep in mind the intense saturation of general-purpose forces with the nuclear weapons available to the army, air force and navy of both sides.

To be sure, these four options do not by any means describe all conceivable forms of such a confrontation: there may be different combinations. The four options may only be viewed as one of the analytic instruments for progress in resolving the problem of strategic stability.

Offensive Defence

The essence of this option consists in that either side is oriented towards immediate counteractions—the conduct of strategic defensive operations—in case of war (the other side's attack). In this event, the hostilities would be resolute and uncompromising. Supposedly, either side will seek to conduct operations on the territory and in the airspace of the enemy to prevent subjecting their own territory to excessive destruction and radioactive contamination, among other reasons. The Soviet military doctrine prior to the Second World War provided for a similar *modus operandi*.

This option is in line with the traditional postulate of the military thinking: nothing but resolute offensive actions and efforts to seize strategic initiative can bring victory, and victory, in turn, consists in the conclusive defeat and destruction of hostile forces. A commitment to this postulate was brought out in sharp relief back in the 19th century, during the Napoleonic wars. Moreover, it dominated military and political thought during both world wars.

Psychologically, offensive strategic and operational concepts have always appeared quite attractive in a number of respects. Still today, many believe them essential for maintaining the morale of armed forces at a high level. Such ideas are also traditionally popular with broad sections of the public that are not adequately familiar with military realities.¹

With the onset of hostilities, confrontation forces the sides, in effect, to seek a series of meeting engagements. Such engagements have long been regarded as one of the most complex kinds of military operations particularly calling for great skills of troop command and control. Under the present conditions, such operations are becoming extremely difficult to direct.

Readiness for meeting engagements adds to the tensions

¹ See: A. A. Svechin, *History of the Art of War*, Part I, Moscow, 1922, pp. 31, 46 (in Russian).

of the military-political situation and feeds mutual suspicions. The problem is that orientation towards these kinds of operations requires top-level combat readiness, regular large-scale military and HQ exercises. This option of confrontation calls for the appropriate structure of combat power and the make-up of the groupings for meeting engagements and counterattack-meeting engagements. Significantly, it is extremely difficult to draw the line between what is intended for pre-emptive offensive operations by the defender and what is designed for the sole purpose of beating back the attack.

Operational second echelons and in-depth reserves are important for this kind of confrontation. Consequently, this makes it quite probable that the second echelons may come under powerful strikes (including at the earliest stage of the conflict) by both aviation, surface-to-surface missiles and advanced reconnaissance-strike complexes. Thus, at the very outset the battle may spread far beyond the line of contact.

With this option of confrontation, the beginning of an armed conflict may set into motion large bodies of troops and very complex regroupings. It would be immensely difficult to defuse the situation and restore peace, i. e., this option presupposes an irreversible military conflict of an escalating intensity and scale and allows for inevitable problems and even the possibility of the loss of control on the part of the political leadership and the high military command.

Counteroffensive Strategic Defence

Both sides gear their strategy and operational art to renouncing the offensive deliberately at an early stage of conflict, proposing the preparation and conduct of only defensive warfare. Thus, reliance would be placed on a well-developed and fortified positional defence in depth and on a counterattack force prepared in advance. After the aggressor is repelled in the course of a defensive battle that does not rule out retreat and withdrawal from part of his own territory, the defender retains the capability to use the

reserves brought up from the rear and to launch a vigorous counteroffensive (or a general offensive if need be), up to and including the destruction of the enemy on his territory. Counteroffensive actions may be either operational (by an army, army group, front, flotilla and fleet) or strategic (group of fronts and fleets on a theatre of operations).

The Battle of Kursk in summer 1943 is illustrative of the main idea and concept of such a defence, the principles of its structure and equipment, the distribution of combat power and the overall nature of the conduct of defence.¹

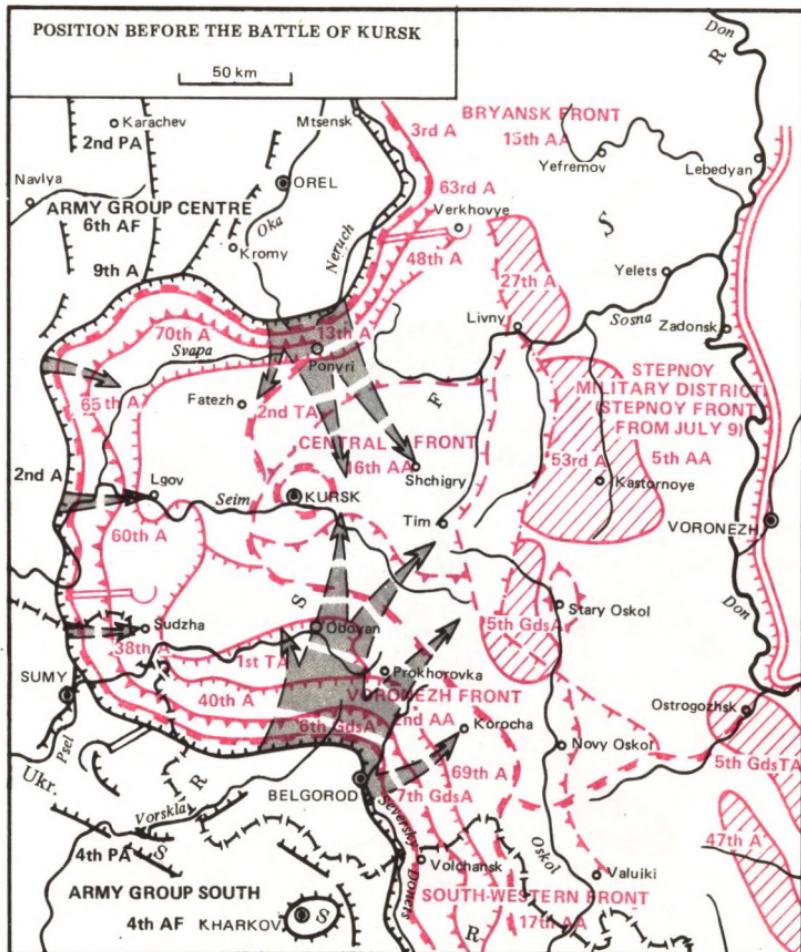
In that battle the defence, the more economical mode of action, demonstrated its ability to gain maximum advantage over offence by creating a system of fire power of a high and increasing density (in particular, AT weapons). Combined with a great variety of man-made obstacles, it made it possible to resist the most powerful attacks of armour.

Hitler's command regarded tanks as decisive for success in the Zitadelle offensive operation staged at the Kursk Bulge. Large numbers of advanced German military equipment were expected to become operational by the early summer of 1943: the T-VI Tiger heavy tank, the T-V Panther medium tank, the Ferdinand heavy assault self-propelled gun.

At that time these were formidable weapons. Their performance characteristics were far higher than those of the systems the Wehrmacht had used for the initial attack on the USSR, overcoming in most cases the Soviet defences in the course of the offensive in the summer of 1941 and in 1942.

In the summer of 1943, Nazi aviation still had mastery of the air. The German aircraft industry still could develop new models of equipment. Specifically, the Kursk sky saw the Focke-Wulf 190-A fighter (speed 625 km per hour, armament: four 20 mm guns and six machine guns) and the Henschel 129 fighter bomber.

¹ For more details, see: A. Kokoshin, V. Larionov, "The Battle of Kursk in the Light of the Present Defensive Doctrine", *Mirovaya ekonomika i mezhdunarodniye otnosheniya* (World Economy and International Relations), 1987, No. 8, pp. 32-40.



→ Directions of planned strikes by Nazi troops

Defence areas of Soviet troops

Main battle area

Reserve area

Rear area

Outer lines of defence

First line of defence

Second line of defence

Third line of defence

Defensive line of Stepanoy Military District

State defensive line

Strategic reserves concentration area

● Areas of follow-up echelons and front reserves

— Defensive lines of Nazi troops

Front lines at the end of

July 4

July 5

July 6

July 10

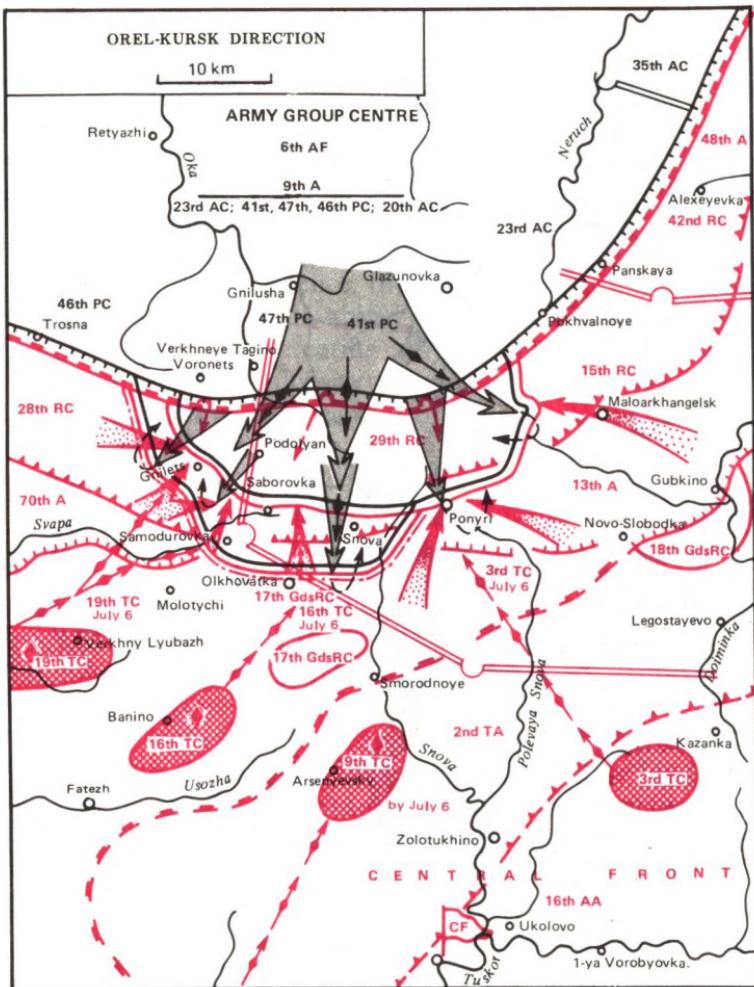
July 12

July 15

→ Directions of strikes by Nazi troops

→ Main directions of Soviet counterstrikes and counterattacks

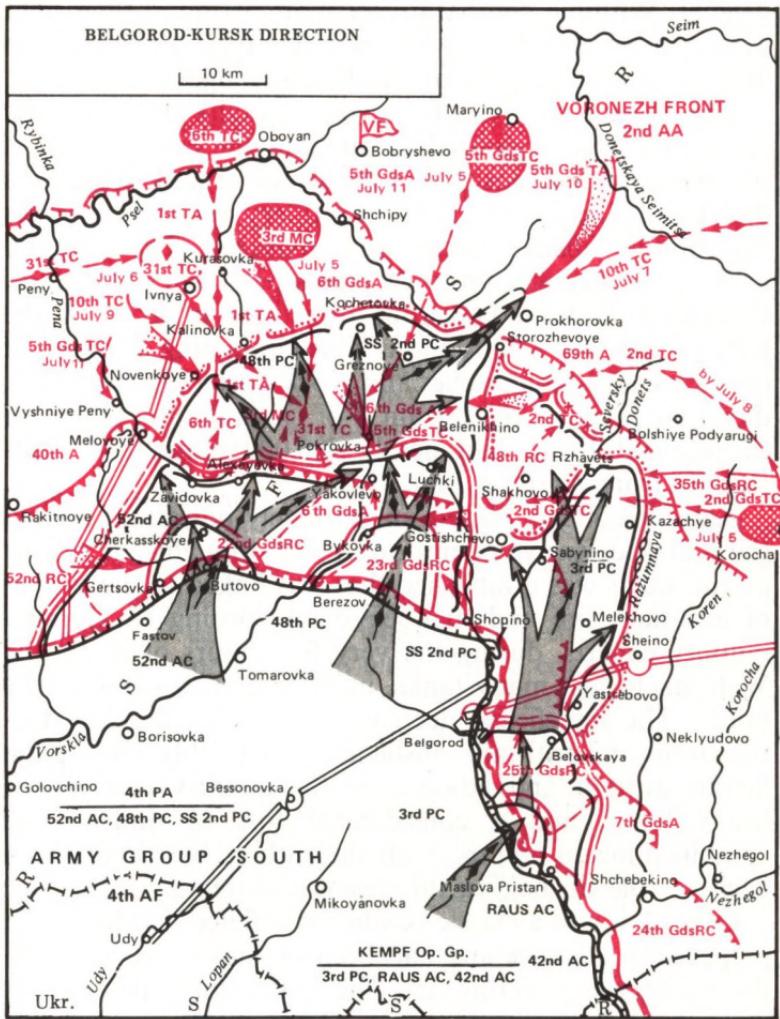
BATTLE OF KURSK. DEFENSIVE BATTLE



Though the Soviet Army was as strong as the Wehrmacht at Kursk, or even stronger in some areas, the General Headquarters of the Soviet Supreme Command rejected the idea of an attack at the earlier stage of the campaign in favour of an original plan of deliberate defence.

It was demonstrated in that case that a reliable defence

OF SOVIET TROOPS July 5-23, 1943



had its strong points even if the defender had a preponderance of force. The idea was to have guaranteed anti-tank defence. The safety margin was such that it gave assurance that the enemy would not be able to disrupt the operational links between its elements, achieve a hard-to-plug breakthrough and to rupture the strategic front.

First priority was to guarantee a stable, impenetrable defence. Within a comparatively short period of time eight defence areas and defensive lines with a total depth of up to 300 km were organised at the Kursk Bulge.

The defence plan was based on anti-tank positions and areas that were organised throughout the entire depth of the operational disposition of the armies in tank-dangerous directions. The manoeuvring of artillery anti-tank reserves and mobile obstacle units was envisaged. The antitank artillery density was up to 23 pieces per 1 km of frontage. Organised in tank-dangerous directions in front of the forward line was a continuous zone containing a variety of obstacles: anti-tank ditches and block obstacles, minefields, dams for flooding the terrain. For example, the troops of the Central Front laid nearly 400,000 mines and field-charges from April to June 1943.

Anti-tank mines played an extremely important role in the Kursk defensive operation. A well-thought-out system of minefields was established that was linked to the system of anti-tank fire and manoeuvre. According to German military experts, during the very first hours of battle the Wehrmacht lost many tanks, in particular, because of the mines. The minefields, deep wire obstacles, flanking fortifications and anti-tank obstacles considerably held up the hostile armour and advance of the infantry and caused heavy losses and a considerable loss of time. These combined means and methods the authors believe played a decisive role in making the defences extremely stable.

Overall, it was a classic positional defence that had been prepared in advance and had been organised according to the military-engineering art. The battle confirmed that it was completely impregnable. The enemy could not penetrate deeper than the first army defensive line. The enemy attack lost its momentum when the enemy was 12 km inside the defence area of the Central and 35 km inside the Voronezh Fronts.

To be sure, there have been numerous changes since the Battle of Kursk. Armed forces are equipped with different weapons today. But the experience of the deliberate defence at Kursk is now attracting the attention of experts seeking

a more strategic stability and a reduced danger of war.

Nor can there be direct analogies between the Battle of Kursk and the second model of defence on both sides of the line today separating the Warsaw Treaty and the NATO. The Kursk defence was organised during the war years. It had completely different political and strategic motives than the largely non-offensive structure of the armed forces and their strategies and the peacetime operational plans oriented towards the prevention of war.

Appraising the advantages and disadvantages of the above model of confrontation, one can say that if we regard it from the angle of the promotion of strategic and international political stability, its chief interest lies in its deliberate defence. As for the nature of the operational disposition of troops and the organisation of the defensive lines, this question should be examined and discussed in detail by the representatives of the sides. This model of confrontation appears to be more stable than the previous one. Its weakness lies in the complexity of control and the difficulty of ascertaining what actions either side is preparing (or is prepared) to undertake: a counteroffensive or pre-emptive offensive. Nevertheless, the difference between the two would be more pronounced than in the former model.

The possibility of a conventional war escalating into a nuclear one is equally high in both models (in particular if in the latter model the sides retain the capability for counteroffensive actions that can develop into a general strategic offensive).

The difficulties of battle command and control on the part of the higher political and military leadership would be quite considerable in the latter case, though control would be easier than in the former model.

Counteroffensive Operational Defence

This model implies that the sides possess only the capabilities for the defeat of an attacking hostile grouping on the protected territory, without crossing the border to take a counteroffensive. The war is not carried into the

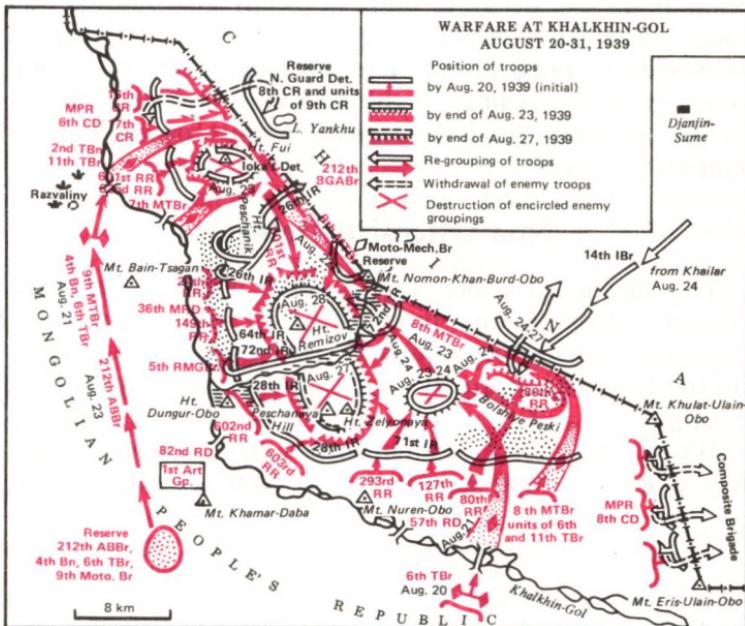
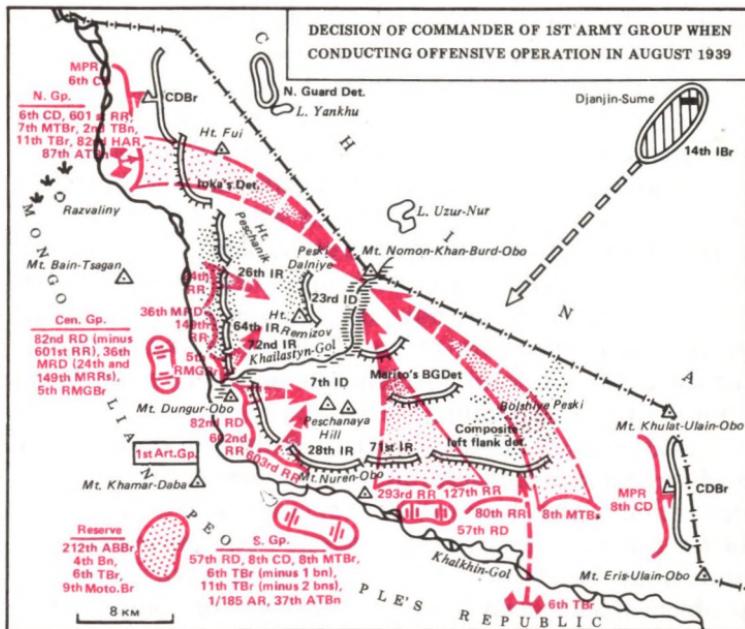
territory of the country that started the war. Vigorous actions by the defender only restore the status quo ante bellum. The capabilities of the sides for active actions do not exceed the operational level: the capability for counterstrikes by an army group or an army. Consequently, a victory may be operational or tactical, but never strategic.

With certain reservations, an example of such an operation in the history of wars may be provided by the defeat of the Japanese troops that invaded the Mongolian People's Republic in the vicinity of the Khalkhin-Gol River in 1939. In a brilliant operation to encircle and cut off the invading troops from the state border, the 1st Army Group of the Soviet-Mongolian troops under corps commander Georgi Zhukov routed the Japanese 6th Army in the Mongolian desert on August 20-31, 1939.¹ It was quite important that in the course of the operation the Soviet air force gained mastery of the air (Japan had it during the earlier stages of the conflict).

The aggressor was taught an object lesson. But the territory from which the aggressor had struck was not invaded though the USSR had the military capability for a retaliatory operation. The enemy sought a truce. Taking into account the military strategic situation in Asia and in Europe, Soviet leaders decided against carrying the war into Japanese-occupied Chinese territory (Mangzhou-guo). Talks between the USSR and Japan halted hostilities on September 16, 1939. In the long run, the defeat of Japan at the Khalkhin-Gol River did much to stabilise the situation in the region.

Another, more recent, example is provided by the Korean War or rather one of its stages when the sides tacitly consented to refrain from crossing the demarcation line and expanding the scope of hostilities at the fourth

¹ As an indication concerning the scale of the operation, here is some data concerning the combat power of the belligerents as of August 20, 1939: the USSR and Mongolia had 57,000 troops, 542 artillery pieces, 498 tanks, 385 armoured vehicles and 515 airplanes; Japan had 75,000 troops, 500 artillery pieces, 182 tanks, more than 300 aircraft, and no armoured vehicles. Thus, Japan had a manpower preponderance but was behind in military equipment, in particular armour. (See: *Soviet Military Encyclopedia*, Vol. 8, p. 353, in Russian.)



stage of the war after the situation had become stabilised.

As is known, the Korean War was the first large-scale local war since 1945. From July 10, 1951 to July 27, 1953, i.e., when a truce was signed in P'anmunjom, the war had the character of mobile defence with sporadic engagements in the areas adjacent to the 38th parallel. The hostilities were limited in scale, meaning that with tacit consent the sides refrained from moves that could add fuel to the fire: the troops of the North Korean armed forces and the Chinese volunteers did not penetrate deep into the South Korean territory south of the 38th parallel, while the US air force did not bomb installations on the territory of the Chinese People's Republic.

Under present conditions, the difficulty in carrying out such a defence consists in the following. First of all, determining what territorial losses either side would accept before the restoration of the status quo renouncing revenge, and what losses would be too big to take. A second problem lies in determining the amount of compensation for the attacked side. A third question is to determine at what point the defender finds he needs no progress any more: when the invading grouping is eliminated, or would he decide to press ahead. The Japanese-invaded Mongol territory in the vicinity of the Khalkhin-Gol River was a desert, and the hostilities caused almost no civilian or material losses.¹

Non-Offensive Defence

The idea is for either side to adopt a purely defensive strategic or operational mode of action without the capability for offensive or counteroffensive operation, doing so on the basis of reciprocity or with either side following an example.

We can state the following general views concerning the idea of a non-offensive defence – a concept attracting much

¹ G. K. Zhukov notes in his memoirs that the absence of a population in the battle area complicated the work of reconnaissance (see: G. K. Zhukov, *Reminiscences and Reflections*, Vol. 1, Progress Publishers, Moscow, 1985, p. 264).

interest on the part of both Western and Eastern analysts of strategy.

First, under the conditions of military strategic equilibrium and the generally acknowledged need for mutual security, the question of the superiority of either side comes into conflict with the concept of stability. While during the pre-parity period a country or a coalition of countries could ensure their security through an economic and military build-up and the possession of stronger, more mobile and better-trained groupings of armed forces than its (their) enemy possessed, under the conditions of nuclear parity these factors do not add appreciably to security. By adopting the concept of non-offensive defence, a country or a coalition of countries provide additional proof that they do not seek superiority nor nurture plans to attack their opponent.

Second, while the political reasoning behind the concept of non-offensive defence is universal, there is a wide difference of views on the military technological aspects of this model of confrontation even among ideological allies, first and foremost, from the military professional point of view.

The concept of non-offensive defence gives rise not only to the scenario of confrontation between the sides but also to the general orientation of their military doctrines. Viewed from the angle of military technology, it describes the organisation and conduct of defensive operations, largely tactical or in certain cases operational, but it does not rise to the level of strategic warfare, i.e., it rules out an attack or counterattack with warfare carried into the enemy territory.

With the concept of non-offensive defence under discussion today among scientists, experts and advisors, two approaches to its implementation have been developing. Most Western experts regard the path to a non-offensive defence as mainly in the modernisation of its technical means, and in certain cases in the development of new kinds of "defensive" weapons. We use the word "defensive" with quotation marks because some weapons systems are very hard to classify as defensive or offensive. Even if

rationalised as concern over the improvement of defence potential, the development of new weapons systems can only increase the number of uncertainties at talks. Moreover, the advent of a new array of weapons, even if purely defensive, means intensifying the conventional arms race. This is exactly what we must avoid.

Another approach towards the concept of a non-offensive defence (which the authors favour) consists in scrapping their defensive capabilities by removing, reducing, destroying or withdrawing within the national boundaries a maximum of their offensive means and control systems that would facilitate a surprise attack and by not developing new weapons. High mobility may be agreed on by the sides only for tactical army elements that can be used for counterattacks (battalion, regiment or at most division level).

Such groupings probably should not have strike aviation, fast-action destruction means (for example, reconnaissance-strike complexes), high mobility and striking power (tank and air assault divisions) and combat power for deep penetrations. Thus, defence can become fully "non-offensive"; correspondingly, a victory in this model can only be on a tactical scale, not on a strategic or operational one.

In examining the above options, one can justly state that the last one is better suited than the other models for strategic stability and the reduction of the sides' military potentials to the level of reasonable sufficiency dictated only by the requirements of defence.

Other Problems of Crisis-Free Confrontation

Obviously, the task of preventing both nuclear and conventional war should go beyond the period before the outbreak of hostilities (D-day). It is necessary to figure out and build into the mechanism of relations between the sides such elements as would be able to promote localisation of an armed conflict in the event the political and diplomatic safety valves fail. The fourth of the above models meets this task better than the others.

It is particularly difficult to localise an armed conflict involving the use of a tactical battlefield nuclear weapon. Here the concepts of a limited nuclear war are destabilising. However, another danger lies in the lack of mechanisms to prevent the escalation of a single (including unsanctioned) use of nuclear weapons into an uncontrollable nuclear war. In this connection, we should again emphasise the extreme danger of general-purpose forces possessing large numbers of organic nuclear weapons. Under such conditions, it is of paramount importance to ensure, both organisationally and technologically, full control over nuclear weapons by the highest levels of political leadership and military command of the sides.

In addressing the problems of prevention of war, the sides cannot stick to rigid "either-or" schemes. It would be reasonable to seek compromise agreements and regard every positive step as useful. The complexity of implementing a truly non-offensive defence cannot rule out agreement upon other models of confrontation that, even if not particularly stable, make for progress towards a stabler balance.

Any model of defence can be taken as the subject for a strategic analysis only in the event of contact confrontation or when the sides are separated by an agreed upon demilitarised corridor, but only on the ground. However, other parameters should also be considered in examining the combat power deep inside the territories of countries and coalitions. For example, the sides may define the principles of confrontation on the ground with account taken of all the forces grouped along the border and tending to accomplish combat missions together with land forces within the specified depth. However, regardless how things go on the ground (for the sake of hypothesis, there may be a perfect calm there), the aggressor can make a sudden strike from the air, outer space or the sea. Thus, the question of making naval, air force and space-based forces non-offensive should be considered on the basis of the principles of equal and mutual security.

In effect, a factor for implementation of the concept of a non-offensive defence is contained in the proposals of the

Budapest Conference of the Warsaw Treaty Political Consultative Committee in June 1986. The document proposes working out a pattern in the reduction of armed forces and conventional armaments that would reduce the danger of a sudden attack and help promote strategic stability in Europe. To this end, it is proposed for the sides to agree at the outset on a considerable reduction of the tactical strike aviation of both military political alliances in Europe, and on thinning-out the troop concentration along the line of contact. Towards this objective, additional measures would be worked out and implemented that could assure the Warsaw Treaty and NATO countries and all European states that sudden offensive operations would not be undertaken against them.

It would be quite difficult for the sides to embrace the model of a non-offensive defence, and many purely military issues acquiring right before our eyes political dimension will have to be discussed with unprecedented frankness and resolved together. They include: the definition of which kinds of armaments are defensive and which are offensive; the methodology of field training of troops, etc.

If the would-be defensive military structure of the sides sheds some of the existing services or kinds of armaments, there arises a great number of major political, military-technological and doctrinal questions.¹ Nor is it easy to define the defensive and offensive capabilities of units.

It would be immensely difficult to work out a single set of criteria for the comparison of qualitative and quantitative parameters of armed forces and armaments. There is, however, a number of signs and characteristics that make it possible to classify a particular system or weapon as being predominantly an offensive or defensive category, and to do so with a large degree of certainty.² In

¹ Thus, the renunciation of nuclear weapons (first of all, tactical) calls into question the efficiency of the entire strategy of flexible response as adopted by NATO back in 1967.

² Soviet and foreign experts describe as predominantly defensive means the following: AT guided missiles; portable surface-to-air missile complexes; mines and explosives; various fortifications; towed artillery systems; and low-speed combat support aircraft without in-flight refuelling capability.

addition, the sides can agree on some limit on quantitative level. Exceeding this level would be regarded as a departure from the defensive concept and the acquisition of an offensive capability.

We believe that the performance characteristics of weapons systems are essential qualitative indices of these systems providing some ground to draw a line between offensive and defensive means. Such important qualitative characteristics may include: speed, mobility, the possibility of the multipurpose use of a system, the degree of its protection and invulnerability, all-weather and night fighting equipment, etc. The correlation of offensive and defensive characteristics may be determined and agreed on for every major weapons system.

The human factor plays an essential, at times decisive, role, as far as the character and outcome of warfare is concerned, including: the numerical strength of manpower, its level of training and morale, the skill of the commanders, the organisational structure of armed forces, the degree of manpower staffing in units, the possibility of the mobilisation deployment of forces, the state of the reserves, and the methods of manpower training. All these characteristics and indices may be looked into as regards the possibility of offence and defence.

The reduction of the number of large-scale manoeuvres and exercises, and even more so, their renunciation, may be viewed as evidence of the sides' commitment to defence. Such intentions can also be confirmed by extending the period of prior notification and restrictions on the number of participants in the war games that do not require prior notification.¹

New arrangements in this field could provide in the near future for limits on the strength of troops taking part in exercises, on aircraft, naval forces, their purpose, operational scale and the size and location of the areas of

¹ Under present conditions, it becomes increasingly difficult to match an exercise situation to real combat situation. As is clear from the forms and methods of field training, with the development of the means of warfare and the growth of their kill capacity, the gap between an exercise and combat widens.

exercises. Later, it would be expedient to agree on all exercises to be undertaken on a tactical scale. Also, they should be so conducted as to make the operations purely defensive: holding positions, launching counterstrikes and counterattacks, etc.

Assigning regular units to the reserve may become one of the elements of shifting to a non-offensive defence.

The above questions need to be thoroughly elaborated by military and civilian experts of both sides on the basis of the criteria and the conditions of the stability of military strategic equilibrium.

7. Surprise as a Factor Disrupting Strategic Stability

Traditionally, surprise has been considered one of the most important war principles. The ability to attain surprise has always served to indicate a high level of the art of war, since if accomplished, surprise produced maximum results with a minimum loss of time and force.

But with the development of the means of warfare, the role and importance of surprise in the art of war and the views on the ways to attain it have been changing. We could point to another law: the role of surprise was and is directly dependent on the growth of the kill power, fast action and mobility of weapons and military equipment. It is not accidental that the advent of nuclear weapons and effective weapon-delivery vehicles has given surprise the status of a nearly-absolute factor.¹

This is particularly typical of US nuclear strategy. Post-1945 US manuals list surprise among the nine fundamental "principles of war"². Surprise has come to be associated, first and foremost, with a first nuclear strike.

It would be sufficient to remember the quite unambiguous assessments of the role of a first pre-emptive strike during the period of the US nuclear superiority and the massive retaliation doctrine. A US military expert, Dale Smith, wrote at the time:

"Our announced military policy depends 'primarily upon a great capacity to retaliate, instantly, by means and at

¹ Judging from the experience of warfare, the physical nature of surprise is such that it is in effect only until counter-surprise measures begin to be implemented. The advent of nuclear weapons offered a new dimension to the formula: the targets of a surprise attack can be attained before the counter-surprise measures go into effect. At the same time, the price the aggressor would have to pay if surprise is not attained has been spiralling.

² They are: mobility or movement, the prime objective, the offensive, the cooperation principle, mass or concentration of force, simplicity, security, surprise, and economy.

places of our own choosing'.¹ This policy wrests the initiative from would-be enemies and puts national policy one step closer to the military doctrine of celerity."²

The mass media of the time actively participated in the propaganda of such views.

"Pentagon.—Stop promising piously that the U.S. will not strike the first blow and never start a war. Make it clear that we will do just that if forced to by the Soviets. That startling switch in policy is being urged now behind closed doors by top Air Force strategists,"³ wrote the US magazine *Newsweek*.

The 1950s were a period when the US military doctrine placed greater emphasis on surprise in starting war than at any other time before or after. When the USA lost its nuclear monopoly and with strategic parity coming into being, US leaders became more cautious in their statements concerning surprise. With the changes in the balance of strategic forces and the development of technology and the strategic situation as a whole, today the West expresses more reserved views and discusses the need for mutually guaranteed conditions and obligations to prevent a surprise attack.

However, the dogmatic faith that certain fundamental "principles of war" are unshakeable has yet to be fully shattered. Thus, surprise as a factor for disrupting strategic stability still remains an urgent problem. And this is exactly the role it plays today, speaking of strategic surprise. Moreover, it is most often associated with the outbreak of war. As for operational and tactical surprise, we believe that these factors will remain natural attributes of the art of war for a long time.

Now let us examine the ways and methods of attaining strategic surprise with special emphasis on those that tend to destabilise the international situation more than others.

¹ Speech of Secretary of State John Foster Dulles, January 12, 1954. Quoted from: Dale O. Smith, *U.S. Military Doctrine. A Study and Appraisal*, Duell, Sloan and Pearce, N.Y., 1955, p. 44.

² Dale O. Smith, *op. cit.*

³ *Newsweek*, Vol. LIII, No. 6, February 9, 1959.

Concealment of True Intentions

The first thing that needs attention are efforts to mislead the other side as to the true intentions—misinformation, keeping the plan of action secret, and providing for the strict secrecy and concealment of preparation for attack.

Today, all these measures can quite easily be described as the antithesis of trust, openness and *glasnost* in international affairs, i.e., everything that makes a strategic situation more stable.

The most vivid example of a large-scale campaign of misinformation and deception was the preparation of Nazi Germany's attack on the Soviet Union. Hitler's command took special pains to keep the concept and scenario of war secret until the outbreak of the war, except for a very narrow circle of Reich officials. A series of moves were undertaken to convince the world that German armed forces were preparing operations in Gibraltar, North Africa and Great Britain.¹

The Nazi leaders sought to keep the population and the Wehrmacht under the impression that these efforts were part of the preparation for a landing in Britain and that the concentration of force in the East was intended to deceive the British. Rumours were spread about airborne corps (which did not really exist) that were to make a landing in Britain and North Africa. English-speaking interpreters were assigned to military units, and new maps of the British territory and guidebooks on Great Britain and its colonial possessions were published.

The Nazi German High Command issued the following instructions when it would no longer be possible to conceal the concentration of troops: "The rumour must be circulated among the units stationed in the East that they

¹ On February 15, 1941, the Nazi German High Command (OKW) issued a directive concerning the camouflaging of the efforts in accordance with the Barbarossa Plan which said: "The aim of misinformation is to conceal the preparations for the Barbarossa operation. This principal aim determines all measures undertaken to mislead the enemy" (*Fall Barbarossa. Dokumente zur Vorbereitung der faschistischen Wehrmacht auf die Aggression gegen die Sowjetunion (1940/41)*, Deutscher Militärvverlag, Berlin, 1970, S. 248).

are to provide a rear covering force against Russia and a 'diversionary troop concentration in the East', while the troops stationed along the English Channel must believe that we do prepare an invasion into England."¹

According to Hitler's plans, all these efforts were intended to provide for a surprise attack on the Soviet Union. Quite an important role in the preparation for the aggression was played by the non-aggression pact proposed by Germany to the Soviet Union. As evidence that Germany faithfully observed the non-aggression pact and to counter rumours concerning preparations for war, a few days before the war, Hitler ordered the dispatching of a cruiser Germany had been building on Soviet commission to the USSR – to be sure, without the armaments.

Moreover, Zhukov states that roughly a month before the outbreak of the war, Hitler assured Stalin in a personal letter that Germany's preparations near the Soviet border had nothing to do with the preparation of an attack on the Soviet Union.²

Misinformation and misleading the enemy did much to help Japan achieve strategic success in its attack on US bases on the Pacific in December 1941. Though Washington and the US Pacific Command knew of the forthcoming strike, the misleading measures taken by Japan helped it attain surprise in delivering a strike of unexpected power on Pearl Harbor, US Pacific naval base in Oahu Island, and the US bases in the Philippines.

In a number of cases an aggressor was able to attain strategic surprise after the Second World War as well. Such examples are quite numerous: the war unleashed by Israel against Egypt in 1967, Argentina's unexpected landing on the Falkland Islands in 1982, and the surprise US air-to-surface missile strikes on Libya in 1986.

Thus, misinformation and harbouring perfidious war plans are in themselves at variance with confidence-building measures in relations between countries and

¹ *Fall Barbarossa. Dokumente zur Vorbereitung der faschistischen Wehrmacht auf die Aggression gegen die Sowjetunion (1940/41)*, Deutscher Militärverlag, Berlin, 1970, S. 260.

² See *Kommunist*, 1988, No. 14, p. 98.

coalitions of countries, and they must be outlawed on the basis of international agreements under the UN aegis. It is not accidental that the Stockholm Conference on Confidence- and Security-Building Measures and Disarmament in Europe described the need for open diplomacy as one of war-prevention measures.

The Final Document of the 1980 Madrid Meeting also gives prominence to the development of confidence, cooperation and openness among the signatories in respect to promoting security in Europe.

The Vienna Meeting of the representatives of 33 European countries, the USA and Canada that closed on January 19, 1989, also gave priority to the development of confidence and the creation of conditions making difficult a surprise attack.

Specifically, the mandate of the talks stresses the need to restrict the blocs' military activities, expand their openness and predictability and improve effective control over the movement of troops and sea-based weapons. It also provides for agreement on the exchange of information not only concerning the movements of the blocs' forces, military exercises and other kinds of military activities, but also for the discussion of military doctrines and the use-of-force concepts and of ways to reduce military confrontation and promote security.

All these steps and agreements would only be welcome if the decades-old view of surprise as a factor facilitating a radical and rapid change in the balance of forces and the attainment of victory could be overcome in the minds of people, in particular in the minds of the professional military.¹

¹ For example, here is what the US Air Force Manual (1.1. 1984) currently in force, says of the role of surprise: "Surprise can decisively shift the balance of power. Surprise gives attacking forces the advantage of seizing the initiative while forcing the enemy to react. When other factors influencing the conduct of war are unfavourable, surprise may be the key element in achieving the objective. The execution of surprise attacks can often reverse the military situation, generate opportunities for air and surface forces to seize the offensive, and disrupt the cohesion and fighting effectiveness of enemy forces... Surprise requires a commander to have adequate command, control, and communications to direct his forces,

Yet, one could hope, nevertheless, that the widespread criticism of misinformation, deception, and secrecy in relations among countries belonging to opposing military political blocs and the promotion of confidence will help overcome these dangerous views.

Interconnections Between Surprise and Combat Readiness

First and foremost, strategic surprise presupposes a high level of combat readiness of the armed forces for the delivery of strikes and the beginning of large-scale military operations. Consequently, if we are to be guided by formal logic, we would be warranted to claim that the maintenance of a high-level combat readiness is a direct way to attaining the element of surprise. Thus, if strategic stability is to be ensured, it should certainly be condemned.

But under present conditions, another aspect of combat readiness is emerging in connection with surprise. The problem is that a high level of combat readiness of the armed forces at the national level is viewed as a country's legitimate guarantee against all kinds of emergencies in international relations, against a surprise attack and accidental malfunctions in the early-warning systems. In fact, the technological reliability and readiness of forces and means are inversely proportional to the probability of an unexpected nuclear or conventional conflict.

It cannot be overlooked, however, that today a high level of technological reliability can only be ensured through the development and improvement of increasingly sophisticated weapons, their control means, the automation and computerisation of weapons systems, i. e., by assigning the function of control and supervision exercised by the human being to machinery and cybernetic devices.

Here lies the dangerously contradictory nature of combat readiness.

accurate intelligence information to exploit enemy weaknesses, effective deception to divert enemy attention, and sufficient security to deny an enemy sufficient warning and reaction to a surprise attack."

Combat readiness today has numerous specific features. One, the concept "combat readiness" is expanded to include the entire armed forces and the country as a whole.

While not long ago it focussed on the readiness of fire means and individual units, small and large, to join battle in an organised manner and at a command from above, by now the concept of combat readiness goes far beyond that. It means that the strength of individual units is brought up to a certain level and their commanders and leaders are well-trained; that there are the required stocks of material resources; and that control centres and units on constant alert vigilantly perform their duties. In a word, the degree of troop combat readiness is regarded as satisfactory in peacetime if it ensures their timely deployment and rapid commitment to battle, plus the repulsion of a surprise attack. To gradually place forces into full combat readiness, various armies have different systems of alerts or alarms. In general terms, a typical system looks as follows.

There are four main alerts.

Level 1 is normal alert. It corresponds to routine military activities of armed forces and training at the permanent station and to being on alert in accordance with peacetime procedures and regime.

Level 2 is war awareness alert. When it is announced, control bodies are placed on a round-the-clock alert. Besides, fixed control centres are deployed, the strength of means on alert is raised, reservists are called up, and military equipment is called out of reserve.

Level 3 is simple alert or menace of war. At this level, the activities of NATO armed forces are peculiar in that after simple alert is announced, all army echelons are given wide discretion to act in accordance with the situation, without waiting for further instructions from the centre. This transfer of responsibility from the political leadership to the military command is certainly a danger for peace and is absolutely impossible in the USSR.

Finally, level 4, reinforced alert, is, in effect, an irreversible state of the armed forces, with some provisos in the operating instructions.

Today, a high degree of alert for the attainment of surprise comes in conflict with international security because of military technology rather than ethical reasons.

But what are these reasons?

First, to attain surprise today, one must ensure permanent high-level combat readiness of the entire complex of military means and forces: nuclear and conventional weapons, troops of the first operational and first strategic echelons, control and electronic warfare bodies and intelligence centres.

To ensure high-level technological readiness of forces and means (that would be at least as high as that of the probable enemy), to forestall a strike by the other side and to impair the hostile countermeasures, these forces must be in the appropriate state. This calls for the automatic system of reception, transfer and issuance of the launch commands in which the human role is extremely limited. Literally, minutes remain for a person to think through and make a decision. All of this adds to the risk of accidental war.

The danger of unsanctioned use of nuclear weapons grows all the time because of the nuclear build-up, the constant improvement of the quality of weapons and the development of new vehicles travelling at speeds of up to 24,000 km/h. Such a speed has changed the significance of the time factor decisively and irrevocably. The time is abysmally short for the collection of data and its comprehensive analysis and appraisal and for the adoption of balanced and optimum decisions.

As a result, the process of decision-making is being entrusted to automatic machinery and computers. Thus, man has been gradually becoming prisoner of the machinery of his own making, and this is fraught with catastrophe under conditions of maintenance of the armed forces in a state of readiness for a surprise attack.

The possibility of an accidental, unplanned surprise nuclear conflict causes profound concern to many scientists, public figures and experts who are well familiar with the military destruction systems and their control equipment. Beginning with the 1960s, individual groups of experts have been engaged in research in this field in a

number of countries, including the USSR and the USA.

Summing up the results of this research, one can identify the following groups of causes capable of triggering off an accidental, unsanctioned nuclear war:

- malfunction (outage) of individual units in weapons systems;
- errors of early-warning systems;
- deviant behaviour of operators manning nuclear weapons (alcoholism, drug-addiction, mental diseases);
- political (military strategic) miscalculation.

To preclude an unsanctioned missile launch, there have been the so-called electronic locks of "permissive action links". Since they are modernised systematically, growing more sophisticateds their reliability is increasingly called into question. It is believed that the use of a weapon calls for a secret coded signal. Special built-in systems are intended to prevent the use of the weapon bypassing the "permissive action links".

In fact, there are individuals besides the President in the USA who can order the launching of a nuclear device, in particular in the Navy. In contrast to the army and Air Force, thousands of nuclear warheads, bombs and the nuclear anti-submarine and anti-aircraft equipment of the US Navy are not equipped with the PAL blocking system, electronic mechanical devices to be deblocked by a special electronic code before the use of a nuclear weapon. This is a well-known fact, but the USA gives priority to the execution of the launch command, not to precluding the risk of an unsanctioned launch, since the transfer of codes to ships is difficult.

Four commissioned officers and seven seamen have to act together to launch a SLBM. Nevertheless, certain risks of a naval launching remain. For example, evidence of this is the demise of the nuclear submarine *Scorpion*. With the heavy psychological pressure because of dives and cramped quarters, there is hardly any way of predicting the intensity of conflicts and the rationality of a submarine crew's decisions. Also, according to W. Nicholson, director of the project for the development of deep-diving systems, today the USA has a nuclear-powered submarine fleet operating

at depths at which any malfunction in the submarine means that her crew is doomed. This never-ending stress may give rise to psychological troubles, including the possibility of an unsanctioned nuclear launch.

As for the European theatre of war, risks here are extremely high since in conformity with NATO operational plans, artillery commanders have been empowered to order a nuclear launch.

Thus, all the "permissive action links" and other measures are clearly quite unreliable. This raises the question of the sides' exchanging performance characteristics of the warning systems to raise confidence in the reliability of these systems.

In order to ensure negative control, the ICBM control and communications system uses multiple duplication wire (subterranean), outer space and atmospheric communication. This makes for control over the passage of the signal and the actions of the performers. However, things are quite different with respect to the nuclear charges carried by nuclear-powered missile submarines. They do not have "negative control links". In fact, US submarines are not equipped with technology preventing a non-authorised launching of ballistic missiles. Today, two officers on board a US nuclear submarine (captain and radio operator), can launch her ballistic missiles capable of inflicting horrible, and totally unpredictable, destruction.

As far as its misuse is concerned, the strategic aviation is in a special position. While aloft, strategic bombers can only maintain reliable radio communication in certain zones. When they leave zones, communication may be interrupted. Besides, bombers crash, have malfunctions, etc., far more often than missiles: there are numerous cases of losing bombs, being forced to drop them or of straying off course.

Quite dangerous is the restructuring of control and communications systems to provide for the strategic forces to operate on the principle of "launch on warning", i.e., a missile launch immediately after the warning of the launching of enemy missiles comes through and is

confirmed. Soviet scientists Alexei Arbatov and Alexei Saveliev quite justly note that "because of the shortening of time for decision-making in response to an attack warning or in a non-deliberate nuclear situation, there is the growing probability of a mistake or miscalculation, in particular in crisis moments".¹

Another potential source of war danger is a political or military strategic miscalculation.

The history of wars, specifically, their early-stage scenarios, make clear that wars have often flared up for insignificant reasons that were not envisaged in the war plans. Moreover, political leaders of the aggressor countries responsible for the first shot, have often unleashed a war and then have been compelled to think how to end it, though the opposite approach would have been a far saner one, politically. It is the irrationality of the political and military thinking that often caused mistakes in planning and the actions of the sides in the past (and may do so in the future).

There is today yet another alarming factor. With increasing efforts to reduce armaments, both one-sided and multilateral, to calm the public, steps are being taken to prove that the process does not detract from the quality and combat readiness of the armed forces. Patriotism, and at times careerism, leads military and political figures to make every effort to prove the need to preserve, in the process of reduction, the elements of the armaments that, if scrapped, could reduce the combat readiness of the armed forces and their capability for instant (which is sometimes equivalent to surprise) actions.

And this is what is dangerous. Given the present situation, does the West and the East have the correct understanding of the course towards the improvement of military technology, the modernisation of forces and the compensation for the power of the armaments being reduced? Does not including the most mobile, fast-acting and invulnerable weapons systems among the sacred

¹ *Mirovaya ekonomika i mezhdunarodniye otnosheniya* (World Economy and International Relations), 1987, No. 12, p. 16.

cows, contribute to the preservation, indeed aggravation, of an explosive situation in the world, first of all, in Europe?

This summary of the possible causes and scenarios of war due to miscalculation or accident is still additional proof that the atmosphere in which blind chance may trigger off a worldwide cataclysm is based on a continuing arms race, the stockpiling and improvement of nuclear and other kinds of weapons and the intensification of tensions in international relations. To avoid this, a system of measures is needed to provide for the safe storage and use of military equipment, in particular weapons and equipment on alert and early-warning systems.

First, to provide against a surprise conflict breaking out because the other side has a different idea of the levels of alerts, it would be right to identify together a system of alerts accepted at the interbloc level. This would do much to raise the level of confidence in the most sensitive field of the functioning of armed forces.

Second, in addition to the existing agreements, there is a need for an automated two-way system for the emergency notification of the accidental use of various weapons systems. This would be sort of a safety and accident-prevention system and also one for the impartial analysis of the causes of malfunctions.

Third, the need has emerged for two-way control over the safety devices (electronic locks, "permissive action", blocking and other links) in order to give either side full assurance of them being reliable, that is, the sides should exchange information concerning the performance characteristics of a weapon's warning and self-destruction systems in case of its accidental launch.

Though all of the above sounds blasphemous to the professional military, in particular commissioned officers serving with central command bodies and units on alert who are familiar with top secrets, today stereotypes of thinking have to be overcome at every turn.

The Use of New Means and Methods of Warfare

The use of new, hitherto unknown, means and methods of warfare features prominently among the means and methods used for the attainment of surprise. More often than not these have been used—and, as is clear from the experience of the past, to good effect—already after the outbreak of war. Here are but a few examples.

In violation of the 1907 Hague Convention Respecting the Laws and Customs of War, on April 22, 1915, the German command launched a first-ever gas attack against the British and French troops at Ypres, a town in West Flanders, Belgium. The move had strategic significance as the surprise use of the new mass annihilation weapon (the attack killed some 15,000) with no means of protection (the gas mask did not become operational until a year later) paralysed the will of the British and French command for some time and made the Allies pull their punches.

In turn, the German troops were badly shaken when the British used tanks in the first battle of the Somme for the first time ever on September 15, 1916.

During the Second World War, the Nazi command achieved a temporary surprise effect when it used a new kind of weapon, V-1 cruise missiles and V-2 ballistic missiles, for a strike against Britain in 1944. The British made great efforts to seek the means and methods to deal with the German weapon, and failed to find a way to destroy V-2 missiles in flight. During the last month of the war the world witnessed the use of nuclear weapons. The US atom bomb dropped on Hiroshima on August 6 and another one on Nagasaki on August 8 came as a surprise to Japan and became one of the reasons for its capitulation.

These examples demonstrate that the surprise use of new means of warfare in the course of war has certain effectiveness. Their unexpected use at the beginning of a war may produce even greater results. Thus, the very fact of the development of drastically new kinds of armaments increases the danger of war not only because of a disrupted

balance of forces but also because one of the sides acquires greater opportunities to take advantage of surprise.

Obsessed by the idea of a scientific and technological breakthrough since the period of the US nuclear monopoly, certain US political circles and scientific and technological elite come out with ever new initiatives in this field, and more often than not under the lame or even false pretext: the need to overcome the USA's lagging behind. The result is well-known: in the 1960s, 1970s and 1980s the USA was the first to test and introduce into inventory a whole number of weapons systems that have exerted a destabilising influence on the international situation. The Soviet Union undertook a series of countermeasures, including the development, in some cases, of similar weapons systems. As has been noted, the US government is now pinning high hopes on the Strategic Defense Initiative and competitive strategy that the USA believes must give it a chance for a breakthrough and superiority in the new military technology fields.

The sphere of general-purpose forces and conventional armaments is also witnessing new opportunities for the use of the factor of surprise. With precision, long-range weapons entering the inventory in fairly large numbers, the established balance of combat power of the USSR and the USA, and the entrenched views of the level of stability of this balance, may undergo a radical change. Means of electronic warfare may play an equal, or even greater, role in the attainment of surprise: they may be as effective against control, communications and intelligence systems and equipment as fire means.

If surprise is to be achieved, mobility is important, in particular the rapid establishment of army and naval groupings in the regions where a crisis situation is brewing. The US Field Manual 100-5, 1982, states: "However, strategic surprise is difficult to achieve. Rapid advances in strategic surveillance technology make it increasingly more difficult to mask or to cloak the large-scale marshaling or movement of manpower and equipment... However, the United States can achieve a degree of psychological surprise due to its strategic deployment capability. The

rapid deployment of US combat forces into a crisis area can forestall or upset the plans and preparations of an enemy.”¹

In conclusion, there is another aspect of the problem. Under present conditions, means of information are rapidly gaining in importance both to achieve surprise and to adopt measures to prevent a surprise attack. A breakdown or malfunction of at least one control link reflects unfavourably on the capabilities of forces as a whole, and a disrupted control of forces in several links may produce as great results as the destruction of the forces by weapons.

If a surprise attack is disclosed before it takes place and it does not come as a surprise to the victim of the aggression, this provides a basis for the adoption of measures to prevent such an attack and stabilise the situation. This factor should also be taken into account.

It would appear that research into all these questions by experts in military technology of either side would promote stability and aid in the prevention of war.

The way we see it, the question of surprise and stability cannot be examined only in respect to launching a war and armed attacks. Today, the onerous arms race itself, to an extent, constitutes an equivalent of war, considering its economic and political aims and scope. The arms race has surprising and unexpected situations of its own, though in a specific form.

Here efforts may be focused on the facilitation of technical control to prevent a surprise attack, not on the improvement of the capability to launch it.

At least since the Second World War, the question of a surprise attack has gone beyond the terms of reference of military command and intelligence. In recent times, it has acquired a new political dimension, becoming a subject of serious interstate negotiations.

Viewed in strategic terms, a high-level combat readiness in our nuclear age can intensify the danger of an accidental war, as we noted earlier. The same results are produced by

¹ FM 100-5. Headquarters Department of the Army, Wash., DC., 20 August 1982, p. B-4.

attempts to achieve a breakthrough in military technology or to seek new methods of warfare. Emphasis on surprise, even in research in military theory, sows suspicion and mistrust. For surprise, as we have seen, is one of the key factors in preparation for war and attack.

The efforts to promote restraint in international relations and good-neighbour relations have been winning ever more supporters. They contribute to mutual understanding and trust and, in the final analysis, lead to stabilisation in the world.

Given these conditions, while expanding information exchanges between the Warsaw Treaty and NATO on a wide range of military issues, it would be useful to discuss the problem of surprise as one of the guiding principles of armed forces.

8. Prospects of Stability in a Nuclear-Free World

The Soviet programme for phasing out nuclear weapons all over the world has considerably stimulated efforts at various international forums to seek stability in a nuclear-free world. The nature of these discussions reveals that already today the diverse hypothetical scenarios of the future military strategic situation are very much in the centre of attention of the scientific community and are becoming a subject of research.

Debates on this problem have brought to the surface many questions that were raised earlier in connection with the understanding of the catastrophic consequences of nuclear war and with the growing awareness of the need to learn to live in a nuclear-free world.

Summing up the views of various critics of the need to go over to a nuclear-free world, one can identify their concepts as follows:

1. The Soviet Union and the Warsaw Treaty possess a considerable advantage over the USA and its NATO allies in conventional armed forces and armaments, and only nuclear weapons constitute, allegedly, a reliable guarantee of US and NATO ability to deter them from using this advantage to attain decisive military and political objectives in Europe.

2. Conventional armed forces and armaments do not provide a deterrence potential on a par with that furnished by nuclear forces.

3. With the presence of powerful groupings of conventional forces opposing each other and equipped with sophisticated destruction means (the assumption is that if nuclear weapons are eliminated, a search is certain to begin for compensation), neither side can provide a perfect guarantee of a stable and leakproof defence in the event of an attack. With both sides possessing powerful strike groupings capable of conducting large-scale offensive operations, the situation will always be unstable as the side

that is the first to launch a major offensive will always have very great advantages, and the earlier phase of the hostilities may decide the outcome of the war.

In respect to maintaining a military strategic equilibrium and preventing a conventional war in Europe, a number of Western leaders and experts declare that both are not possible unless the NATO countries proceed with a considerable conventional build-up. But such decisions are allegedly unacceptable since conventional weapons are far more costly than nuclear, and West Europeans cannot afford a major conventional build-up. They note that most West European countries have never carried out the NATO decision committing them to a 3 per cent annual growth of the military budget.

The opponents of the elimination of nuclear weapons are apt to cite a plethora of historical facts concerning situations when the opposing sides' possessing powerful armed forces deferred a major war for a time.

To be sure, such considerations cannot be disregarded. They are expressed not only by the overt opponents of the limitation of armaments and disarmament, but also by many leaders with a constructive approach to this problem and who sincerely seek to promote reliable international security in a nuclear-free world.

Analysing these arguments, one should first emphasise that the Warsaw Treaty Organisation does not by any means possess overwhelming superiority over NATO in conventional forces and armaments. This is stated not only by Warsaw Treaty official bodies but by a number of respectable Western leaders and organisations, for example, a number of former US Defense Secretaries, the International Institute for Strategic Studies, London, the Stockholm International Peace Research Institute and some US research centres.

Over the last couple of decades, NATO countries have been building up their conventional potential in conformity with the bloc's flexible response strategy and the forward-frontiers strategy concept, and in recent times, the competitive strategies. To be sure, at that time the conventional armed forces and armaments of the Soviet

Union and other Warsaw Treaty countries also have been developing. The result has been an approximate equilibrium of forces, even if at a higher level than that in the 1960s, asymmetries and imbalances in individual types of armaments notwithstanding.

Having made a thorough analysis of the numerical strength of the Warsaw Treaty and NATO armed forces and armaments in Europe and adjacent water areas in January 1989, the Committee of the Defence Ministers of the Warsaw Treaty Member Countries stated officially: "The balance of military forces in Europe—when all aspects are taken into consideration—can be characterised as approximate parity, with neither side having decisive military superiority."¹

In respect to deterrence potentials, one should state first of all that the Soviet Union does not suggest the elimination of nuclear and other mass annihilation weapons only to have them replaced by conventional arms capable of inflicting damage close to that of nuclear weapons, and certainly not against civilian targets or population. As noted earlier at the Sofia meeting of the Political Consultative Committee of the Warsaw Treaty Organisation, Warsaw Treaty leaders suggested to the NATO countries an agreement on banning the development and production of conventional arms with a kill power approaching that of nuclear weapons. The offer has been reconfirmed repeatedly.

The system of international security to be established after the world is rid of nuclear weapons must be built on principles other than the fear of mutual destruction or retaliation. This, of course, does not mean that nuclear disarmament will enable Warsaw Treaty and NATO countries to drop immediately their reliance on a certain level of conventional armed forces as quite an important and significant component in the overall system of means ensuring their security.

The enemies of nuclear disarmament actually seek the perpetuation of a nuclear balance of fear in Europe. They

¹ *Pravda*, January 30, 1989.

make it a point to pass over in silence numerous major trends in the development of conventional armed forces and armaments which admittedly do much to provide for the stability of the military strategic balance in a nuclear-free world. It is necessary to consider here the long-term and even super-long-term trends and regularities of the process of evolution of armed forces and armaments. For example, it is important to understand thoroughly the nature of conflict between offensive and defensive means (taking place if the sides have roughly equal scientific, technological and economic potentials) in order to make use of the process of evolution, first and foremost, in the interests of mutual and universal international security, not for the improvement of the existing means of warfare or the development of ever new ones that can intensify the danger of a third world war.

The changes in the nature of correlation between offensive and defensive means are underscored by a number of Western experts who are sincerely seeking to promote the stability of the military strategic equilibrium at the expense of conventional armed forces and armaments. In particular, they focus on the rapidly rising effectiveness of anti-tank defence, air defence, anti-ship missiles, etc. In this connection Soviet and foreign military experts make comprehensive studies of the experiences of recent local wars and conflicts which provide a wealth of materials for the investigation of the problem of the balance between defensive and offensive means. There is every reason to believe that with political goodwill and the understanding of the comprehensive problems in respect to the correlation of forces and the stability of military strategic equilibrium in a nuclear-free world, both sides can undertake the necessary measures to impose a ban on the further development of the components of conventional armed forces and armaments whose qualitative improvement can lead to destabilisation and to a rising war danger.

Apparently, these measures should be carried out together with major cuts in the opposing sides' conventional armed forces and armaments within the framework of the new military-political international situation

that will develop as the world rids itself of nuclear weapons or at least reduces nuclear charges (for example, down to the level of minimum deterrence).

The anti-nuclear peace movements which are alarmed at huge stockpiles of nuclear weapons in Europe will probably focus increasingly on the problems pertaining to conventional armaments. Already today, in the West, these movements against a conventional build-up, in particular against offensive potential, are growing. They embrace moderate political circles that are advancing the so-called alternative defence concepts aimed largely at concerted steps to improve the capabilities of defence over offence, making offence virtually impossible. These measures are expected to promote stability of military strategic equilibrium, reduce the level of military confrontation and the danger of a major conventional war in Europe.

The strengthening of stability in a nuclear-free world is directly linked to the development of methods for the determination of the opposing groupings' offensive capabilities, the ways and methods of their comparison and reduction and phasing out on a reciprocal basis. Today, these questions increasingly go beyond the framework of purely military interests and are politicised, becoming the subject of intense debates of state leaders, parliamentarians and diplomats. Yet, they cannot find an adequate solution without the active participation of military expert personnel who continue to play a leading role in a number of fields.

This set of problems should be investigated in a certain military historical context, with account taken of both objective trends in the development of the means of warfare and of subjective views concerning the nature of wars under present conditions. The problem is that to attain now one's objectives in a war, one does not have to soundly defeat the enemy's armed forces, to destroy and capture them or to seize enemy territory. The experiences of the local wars over the recent three to four decades reveal that even in pursuing relatively limited military objectives, these wars can often produce quite serious political consequences.

What are then the prospects for stabilising the situation if nuclear weapons are eliminated?

First, either side is deprived of the capability for large-scale offensive operations aimed at the defeat of the other side's armed forces (their groupings) and the seizure of its territory. This is impossible, however, unless a side possesses no capability for an early covert concentration of combat power at a definite moment on a definite direction and, consequently, for the achievement of surprise (on a strategic and operational-strategic scale).

As regards European military and political relationships, stability is ensured by the following constructive mutual agreement: one side's defensive capabilities must be far greater than the other side's offensive capabilities and vice versa, i. e., there must be a regime in which either side's defence should be superior to the other side's offence.

The regime of either side's superiority of defence over offence would provide for conditions under which any serious attempts to gain the capability for a surprise attack and offensive operations would cost the country embarking on this road very dearly in material terms and would lead to its discredit in the eyes of the world and to universal censure.

Stringent limitations should be placed on the capability for a fast peacetime military build-up in the zone where armed forces and armaments are reduced, by moving there reserves from other regions and by conducting mobilisation efforts.

Military activities beyond the zones in which measures are undertaken to ensure that either side's defence is superior to the other side's offence, cannot be allowed to lead to a disrupted overall equilibrium.

Second, it would be of mutual benefit for the sides to establish a regime that denies either side the capability for upsetting the overall equilibrium by developing (modernising) weapons systems, whether covered or not by restricting agreements at specific stages. Both the sides' structure and means and their observation (intelligence), control and communications systems should be such as to allow either side's top-level state leaders and military command to

receive, in case of an armed conflict, in time, the required and sufficient information concerning the progress of the conflict and to end it at the lowest level possible.

The mechanism of the sides' interaction may incorporate the elements (non-sanctioned missile launch warning system, hot line, etc.) that would help localise an armed conflict breaking out after the failure of political and diplomatic safety valves.

We believe that among the three fields of the art of war (strategic, operational and tactical), operational art will play the most important role in the creation of conditions to maintain stability when there are only conventional weapons. Thus, it is now becoming increasingly important to conduct research into operational defence, its stability, and the methods to ensure its superiority over offensive operations.

To delve into these questions, the sides must see eye to eye as to what they regard as predominantly offensive and predominantly defensive preparations and operations. It should be again noted that the determination of the offensive and defensive capabilities of the units is quite a formidable task. For example, it may require special methods for the comparison of the sides' combat potentials, a wide use of mathematical modelling, and determination of common criteria for the comparison of the qualitative and quantitative parameters of armed forces and armaments.

As we sought to demonstrate, phasing out nuclear weapons up to their complete elimination, will not mean that things will simply return to the situation that prevailed before the advent of nuclear weapons, though many of the lessons of the pre-nuclear age in the field of international relations, the history of war and the art of war still remain meaningful today. The creation of a stable and secure situation in a nuclear-free world, without reliance on both sides' fear of nuclear annihilation, will be certain to call for an active search for new approaches both in the political and in the military fields, including military doctrines. Hopefully, being centred on new political and military thinking, military doctrines will also increasingly focus on the prevention, indeed, elimination of war.

Conclusion

As this century draws to its end, we fall to thinking increasingly of how the human race is going to enter the 21st century. Its achievements are truly majestic. There are spectacular advances in scientific and technological progress and impressive changes in the lifestyles of many nations—and formidable dangers and problems that are cause for the profound concern of humanity. Ecology, demography, energy shortages, the food problem and the growing gap between the development levels of the advanced and backward countries, pose great challenges. But the gravest danger is the threat of a nuclear war. For more than four decades, progressive forces of the world and all who treasure peace, have made tremendous efforts to do away with that danger. Nevertheless, this menace does not fade, and one would think that the prevention of war will remain for a long time among the most urgent problems.

Whatever field of human activities we look at—economy, politics, ideology and everyday life itself—all depend on the preservation of peace.

Beginning in the mid-1980s, the positive changes in relations between the Soviet Union and the United States, the Warsaw Treaty and NATO have led to the reduction of political and military tensions in the world. The change-over from military confrontation to dialogue and co-operation, concrete steps towards the reciprocal reduction of certain kinds of nuclear armaments, the successful completion of the first round of talks for the reduction of conventional arms in Europe—all give rise to realistic hopes that superarmament will be replaced by reasonable sufficiency and that war can be prevented.

All these changes in the world situation are largely linked to efforts to shape international relations along the lines of new political thinking.

“In beginning perestroika, we looked impartially at the surrounding world and saw a strange situation. The world changed, and different realities emerged, but interstate

relations continued to be built on the principles that prevailed immediately after the war. The same stereotypes have persisted," said Mikhail Gorbachev in an interview to *Der Spiegel*.¹

Indeed, the primary challenge to all who seek to prevent war, is the need to break encrusted stereotypes of thinking and formulate a new view of the war and its consequences, i.e., to transform or drastically re-examine the old approaches and criteria that are particularly tenacious in military doctrine.

This means that notwithstanding the primacy of political solutions, the path to the elimination of the danger of war lies in the reform of the military systems of the world's leading countries, first of all by changing military thinking. It is here, as we see it, that obstacles in the way of applying new approaches are still very strong, in particular in Western countries.

To be sure, the catastrophic consequences of nuclear and conventional war are acknowledged. But for all this, there is always a sacrosanct zone in which, the professional military say, eternal laws and principles are always in operation.

This holds true of the understanding of the connection between the goals of war and the price of victory. The conviction since the very first war was fought as a means to achieve political objectives, has been that victory in a war is so important for a nation that it justifies any price. Hence, the demands the military make upon political leaders: when assigned, an objective calls for adequate allocations. Otherwise, a military system cannot fulfil its purpose.

However, the history of wars proves conclusively that an optimum balance between a war's goal and the means a state has at its disposal, has nearly never been struck. Thus is established stereotype No. 1 of military thinking: "There is no excess in war." This maxim dates back to Karl von Clausewitz' time. It was he who summarised the experiences of the previous wars and was the first to describe the establishment of a "surplus superiority in

¹ *Pravda*, October 24, 1988.

force" as the guarantee of success in a war. According to von Clausewitz, there was no placing of any ceiling on superiority.

Indeed, pushed along by ambitious politicians and their own laws of development, military force and technology have always sought to meet hard-to-reach political goals. However, these goals rose faster than technical capabilities, and before the advent of nuclear weapons they were far beyond the capabilities of the means of warfare. The authors of military doctrines believed that this state of affairs would prevail forever, and force would never overstep the bounds of its profitable use.

However, as the huge growth of force rendered impossible its use in politics, military thinking went on clinging to the old views. The traditional psychology of a balance of force has left a profound imprint on the mind. Even though it is perfectly clear today that superiority beyond the limits of the achieved equilibrium at the level of reasonable sufficiency no longer plays the role it once did, the old dogmas are slow to be supplanted by new assessments. To an extent, it may be explained—but not justified—by the fact that military technology always develops faster than the consequences of its development are comprehended, which is anchored in doctrinal form.

Today, another conviction typical of the professional military—that "only a decisive attack brings victory"—countervails the new concept of security.

These views took centuries to form and were correct in their day. They relied on the concept that victory in a war was crowned by an army advancing forward and seizing (occupying) enemy territory. But can one speak today of an advance through a devastated "zone of death"? And to gain what kind of victory would such an advance serve?

Aware of the total inconsistency and antihuman nature of such military planning, the elements of military doctrines dealing with military technology should follow the principles of non-offensive defence. An open dialogue on this subject would not only help us break out of the prison of the old views but also reduce the threat of nuclear and conventional war.

The formulation of military doctrines and military construction on a purely defensive basis is today becoming a direct practical step towards the prevention of war.

New political thinking is exerting fundamental influence on the formulation of military doctrines.

In brief, the essence of the transformation of military doctrines of the leading countries of the world (in the name of preventing, not preparing for war) consists in recognising that war is no longer a cost-efficient political instrument, and in maintaining the strength and quality of armed forces at the level of reasonable sufficiency in line with the interests of national security and the preservation of peace.

As numerous other questions, the problem of sufficiency has been dealt with in this book from a long-term perspective, though the authors' positions are quite up-to-date. It would be easy to imagine a situation in which the production of armaments was frozen at the level registered at the moment. Strange as it would be from the viewpoint of international security, this would be a contribution to the struggle to reduce the threat of war because with each passing day, with the present tempo of production and improvement of armaments, the world moves farther away from the solution of the problem of survival.

The arms race is rooted in political solutions. But the race in military technology that often goes on independently of them, leads to the improvement of the existing and the development of new weapons systems. Moreover, their inclusion among the combat or support structures often complicates their functioning and management and control over their operation.

Another essential aspect of the transformation of military doctrines are the methods and forms of warfare. It would be natural for the doctrine of the prevention of war to largely be oriented on defence. A non-offensive defence is a method of warfare that is more in line with this imperative than other methods. But the other models dealt with in this book possess a measure of a conflictless quality. We believe that their discussion may produce fruitful

results. It would appear essential to replace the practice of war games in which various war scenarios are enacted by scenarios for the rehearsal of war prevention measures. Such games, without prejudice to the security of the sides, can be conducted on a two-way basis in the presence of representatives of the international public, the UN and mass media of all parties concerned.

The doctrinal recommendations and conclusions in the field of military technology fall into two groups on the basis of their orientation: those which are war-provoking and those reducing its threat. For example, the former category includes the following doctrinal points:

- disposition of armed forces (military bases) facilitating their rapid commitment to action (action from forward lines);
- initiative in developing ever new kinds of military technology and the stimulation of new military technologies;
- highly active and intensive military exercises near the borders of the rival with an offensive orientation;
- keeping armed forces on high degrees of alert.

It is natural that the latter group includes war preparation efforts diametrically opposed in spirit to the former. We are of the opinion that the promising suggestions include: the reduction of the concentration of armed forces and armaments down to a minimum agreed-upon level in the zone of contact; the withdrawal of the most surprise-dangerous, offensive kinds of armaments from the zone; and the comparison of military doctrines and the discussion of concepts and imbalances at the expert level.

To be sure, these and other suggestions concerning the lessening of threat and the prevention of war are not easy to implement. But the dangers confronting the human race are also grave. This leads to the growth of the forces seeking, and capable of putting, an end to confrontation enabling them to go over from the balance of fear to a balance of reason and goodwill, from a narrow national egotism to cooperation. Signed in Paris on November 20, 1990, the Treaty on Conventional Armed Forces in Europe

is evidence that this process is bearing fruit. Their firm faith in the ultimate triumph of the cause of peace is augmenting their strength.

The aim of the book is to show that the creation of a stable and secure situation in a nuclear-free world, without reliance of both sides on the fear of nuclear annihilation, calls for a vigorous and thorough search for new concepts and approaches both in the political and military spheres.

A search for such concepts and solutions obviously demands great efforts, profound research with consideration of political, economic, military and psychological factors. It calls for responsible solutions, taking stock of the laws of development of international relations, military technology and the art of war.

Supplement

List of Abbreviations on Schemes

A – army	Moto.Br – motorised brigade
AA – air army	MPR – Mongolian People's Re-public
ABBr – airborne brigade	MRD – motorised rifle division
AC – army corps	MRR – motorised rifle regiment
AF – Air Fleet	Mt. – mountain
AR – artillery regiment	MTBr – motorised tank brigade
Art. Gp. – artillery group	
ATBn – anti-tank battalion	
Aug. – August	N. Gp. – Northern Group
BGABr – border guard air brigade	Op. Gp. – operational group
BGDet – border guard detachment	
Bn – battalion	PA – panzer army
CC – cavalry corps	PC – panzer corps
CD – cavalry division	R BN – rifle battalion
CDBr – cavalry division brigade	R Br – rifle brigade
CF – Central Front	RC – rifle corps
Cen. Gp. – Central Group	RD – rifle division
CR – cavalry regiment	RMGBr – rifle machine-gun bri-gade
Det. – detachment	RR – rifle regiment
GdsA – Guards Army	RSFSR – Russian Soviet Federa-tive Socialist Republic
GdsRC – Guards Rifle Corps	
GdsTA – Guards Tank Army	
HAR – howitzer artillery regiment	S. Gp. – Southern Group
Ht. – height	
IBr – infantry brigade	TA – tank army
ID – infantry division	TBn – tank battalion
IR – infantry regiment	T Br – tank brigade
L – lake	TC – tank corps
MC – mechanised corps (motorised corps in Nazi Germany's Wehr-macht)	TR – tank regiment
	Ukr. SSR – Ukrainian Soviet So-cialist Republic
	VF – Voronezh Front

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